JUL 31 1920

THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephone*—GERRARD 5356 *Offices*—423, Strand, London, W.C. 2.

No. III. of Vol. II., 1920. **No. 5055. Vol. CXCIX.**

LONDON, SATURDAY, JULY 17, 1920.

Founded 1823. Registered as a Newspaper. Published Weekly.

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THE CLAIMS OF THE STATE ON THE DOCTOR.

MR. PRESIDENT AND GENTLEMEN,—From the earliest times the doctor has served the State, but in this country the direct official inter-relationship is not yet a century old. In 1830 the only direct medical interest of the State, as represented in the Government of the day, was quarantine and vaccination. But in 1831 the Government became anxious about the spread of cholera, then moving towards us from Russia, and an Advisory Board of Health was formed, cholera dispensaries established, and inquiries instituted. One of the results was a measure of defence against cholera, but, far more important, interest was awakened in the insanitary conditions amid which the mass of the people lived—an interest which was confirmed by the inquiries of the Poor-law Commissioners appointed under the Poor-law Amendment Act of 1834. No statute before that of 1834 had definitely provided for the State medical treatment of the pauper, though from 1536 the sick poor had been differentiated from the able-bodied. The famous Poor-law of Queen Elizabeth in 1601 had required the "necessary relief" of the disabled pauper, and under that enactment a wide and rather indiscriminate practice of medical treatment had in fact arisen. Thus it came about that between 1834 and 1838 the Poor-law medical service emerged as the forerunner of the public health service; in 1839 Farr began his work on medical statistics; in 1847 the first medical officer of heath was appointed; and in 1855 a central medical department was established in Whitehall—first, under the Board of Health (1855–58), then under the Privy Council (1858–71), then under the Local Government Board (1871–1919), and, lastly, under the Ministry of Health (1919). These four historical steps in development from the Poor-law origin laid the foundation of the present position of State medicine for the civil community—the Poor-law medical service under 636 Poor-law unions and upwards of 4000 medical men, the public health service under 1800 sanitary authorities and 318 local education authorities, with a composite staff of another 3000 medical officers, the Registrar-General's Department, and the Ministry of Health.

Alongside this entrance of medical men into direct State service there was constantly proceeding a further imposition of statutory duties upon the medical practitioner. Apart from the fact that he may be called upon to undertake official duties in the public service he is liable *under statute* in the following respects:—

1. He must certify births and deaths (Births and Deaths Registration Act, 1874), and notify all births within 36 hours (Notification of Births Acts, 1907–15); he must notify cases of infectious disease (Infectious Diseases Notification Acts, 1889 and 1899, and special notification regulations as issued), of industrial poisoning (Factory and Workshop Act, 1901), and of verminous children (Children Act, 1908). He must also be ready to vaccinate (Vaccination Acts, 1871–1907) and to certify the removal of infectious cases to hospital (Public Health Act, 1875).
2. He may be called upon to inspect and certify for house disinfection (Public Health Act, 1875, and Infectious Disease Prevention Act, 1890), and be prepared to issue certificates for the removal and burial of dead bodies (Ibid).
3. He may be required to inspect and condemn in regard to nuisances and insanitary house property (Public Health Act, 1875, or Amendment Act, 1907), or inquire into unhealthy or insanitary areas (Housing of the Working Classes Act, 1890).
4. He must know something of the ill-effect upon health of dangerous or offensive trades (Public Health Act, 1875), and of unsound food (Public Health (Unsound Food) Regulations, 1908).
5. He must be competent to diagnose all forms of mental disease (Mental Deficiency Act, 1913).
6. He must be available to respond to the requirements of the local sanitary authority for the provision of medical assistance and treatment for the poorer inhabitants of the district in which he lives (Public Health Act, 1875, s. 133).
7. He is liable for a series of duties in regard to workmen's compensation (Workmen's Compensation Act, 1906, s. 8), superannuation, and pension claims (Ministry of Pensions Act).
8. He may be called in by a midwife to assist in cases of emergency (Midwives Act, 1918, s. 25).
9. The local education authority may avail themselves of his services in connexion with the treatment of children and young persons (Education Act, 1918, s. 25).

Lastly, the State has in recent years organised in behalf of the community certain branches of ordinary and special clinical work. The National Insurance Act of 1911 brought 12,000,000 insured persons into medical benefit, at present provided by 12,000 doctors and 10,000 chemists; systematic provision has been initiated for tuberculosis, venereal disease, and maternity and infant welfare; the organised treatment of early mental disease, ophthalmology and tropical disease, and the large questions of orthopædics and the treatment of industrial diseases are now under discussion; and an ever-widening field of public dispensaries, clinics, and hospitals has opened before the profession.

CONSEQUENT NEW RELATION BETWEEN STATE AND DOCTOR.

These are profound changes. They divert, in a handful of years, the whole course of applied medicine from its century-old pathway. They do not abolish the private medical practitioner, but they bring him into a different relation to the State. Their present and future relation must be confirmed and made good on both sides, for, on the one hand, the profession is conscious of new obligations, both those imposed by law and those imposed by a sense of what is demanded by the civilisation in which they live; and, on the other, the State is conscious, as never before, of the community's need of the profession, and the value of the profession's help if sought on the right terms and given in the right spirit. The greatest need on both sides is understanding. Value is the result of the application of mind to matter. The new problem is for State and profession to come to a realisation of the principles which should govern their inter-relation. It is an association peculiarly difficult. For historical reasons the State (which means for the present purpose all authorities, local as well as central, concerned with health) has seen *prima facie* in the profession a body insistent upon the privacy and individuality of its work, the sanctity of its traditions, the freedom of its engagements. Correlatively the profession has seen in the State an organisation apparently devoted to the infringement of these traditions and incapable of putting anything worthy in their place. It has been suspicious and mistrustful of what it considers to be unnecessary intervention. It has feared the imposition of some cast-iron system, some form of so-called "nationalisation," the institution of a whole-time civil service, which might in practice make the practitioner of medicine servile, dependent, and fettered.

What can improve this relation? The answer to this question seems to be—a larger measure of understanding by the doctor of the business of central and local government as representing the whole community, and by the State and its officers and representatives, high and low, of the history, development, and genius of professional character. The doctor should know something of the respective functions of Parliament, of the Cabinet, of the Treasury, of the dozen departments dealing with health problems as subordinate to their main functions, of the Ministry of Health (medical and lay), and its Medical Consultative Council. Further, he should know the meaning of the English system of local government; how it has evolved; why the country is subdivided into shires, boroughs, urban and rural districts and parishes, and what the main purposes are of the respective bodies providing for health, pensions, Poor-law, education, and insurance. For it is only by

such knowledge, inspired by the historical spirit, that the doctor can obtain a grasp of the machinery by which and through which he can render his communal service to the State. He will discover, incidentally, the working of some of the great principles of representative government and the guarantees of its freedom.[1] The layman, what Anthony Trollope, following ancient custom, called "the clerk," besides specialised knowledge of the law and practice with which he is primarily concerned, should learn as much as he can of professional tradition and sentiment, of the scope and opportunity of voluntary work (from the great hospitals downwards) which touches the profession, of professional organisations, and of their history and relation to each other.

Such knowledge on both sides has a direct bearing on the effective working out of the extended relations between the profession and the State which it is now recognised are inevitable. It would enable doctors to understand those necessary and, at first sight, rather remarkable limitations of Government action, which at present he deems to be merely stupidity. For instance, in official work regard must be paid to uniformity, to a "national minimum," to what is practicable rather than what is desirable, to the restrictions of the law, and to public economy. The layman in his turn will learn why doctors are jealous of their *private* practice, of the system of hospital appointments, of the restrictions of whole-time work under public authorities, of the whole personal nature of their relations with their patients, and of professional honour, integrity, and etiquette. These matters are not mere expressions of idiosyncrasy, prejudice, or narrowness of mind. They have behind them a long history, sound reason, and something of a philosophy. Some of them may be vestigial remains of a dead past; others have come to us, living, virile, and purposive, across 2500 years from the days of Hippocrates.

The general effect of this suggested change of outlook would be that the doctor became more political in the true Greek sense, and not with any partisan or meretricious meaning, but rather in the sense in which man was described as a political being, conscious and considerate of the community in which he lives; and Whitehall and the local authorities would realise how far short they are of full understanding of the profession, with whom they must work, and of its growing cohesiveness, its quest of truth, and its undying spirit of "love of humanity associated with love of craft."

FIVE PROBLEMS AWAITING COÖPERATION OF STATE AND DOCTOR.

Partly by way of illustration of the application of these general principles, and partly by way of demonstration of their necessity, I propose to mention briefly five outstanding problems which now face the medical profession in its relation to the State. It will be understood that my purpose is to open a discussion and not close one, and that I am speaking wholly in an unofficial capacity.

1. *The Unit of Health Government.*

The present system of local health government in England is like an Egyptian palimpsest, composed in several layers of design lying one upon the other. At the bottom there are the Poor-law unions, next above them and three times more numerous are the local sanitary authorities, superimposed upon which come the local education authorities (318), then the Insurance Committees numbering 145, and at the top the latest addition, the Local War Pensions Committees. Thus the whole country is mapped out five times over, but the charting has been done by different hands, at different times, and for different purposes, and hence arises duplication, overlapping, and confusion. There is confusion in areas and authorities, but there is no less confusion in the family. There are five local authorities concerned with maternity and infancy; three with children of school age; six authorities deal with persons of unsound mind or mental deficiency; four authorities are concerned with "sick persons"; three with the aged poor; and five with the able-bodied poor. It is all anomalous, extravagant, and redundant, with a result which is ineffective and wasteful. What we seem to need in the abstract is, first, *a single unit of health government* with necessary subcommittees for particular purposes. The principles which should guide us in devising such a local authority are: (*a*) the concentration, as far as practicable, in one authority in each area, of the responsibility for all administration of health services from local rates, with or without Exchequer grant in aid; (*b*) the absorption of the work of the Poor-law and insurance in a public health service and the use by that service for the whole community of Poor-law medical institutions; and (*c*) the unification in appropriate committees of the local authority of all public medical provision for the sick and infirm of all ages. Clearly, there would be advantage in thus having one authority for all health purposes —for a Poor-law medical service, sanitation, education, insurance, and pensions—and towards unification of this nature many are looking. But the question is large and complex, and there are many considerations to which regard must be paid in prescribing a unit of sanitary government, including its history, size, population, urbanisation, character of industry and society, inter-communication, rating, relation to local and central government, and so forth. If a large local unit be contemplated, it would be necessary to provide for the encouragement of a consciousness of community of interest and aim in the smaller contributory or constituent divisions, with appropriate delegation of powers or functions in accordance with services to be rendered. The large autonomous body might in that way delegate some of the actual detail work to the more local bodies. If, on the other hand, a small local unit be contemplated, many analogous questions would arise. All I desire to do here is to name the general principle of unification as one to which attention must be given. There is a second, somewhat similar, common-sense requirement—namely, *uniformity of administration*—in all comparable areas. All through the country and in all departments of State medicine there is need for introduction of accepted standards and a larger measure of equalisation and uniformity of central and local action. There remains a third principle which the profession must not allow itself to forget—namely, that the local unit of health government must be *representative* of the will of the people as a whole. It cannot be wholly medical in personnel or in purpose. It must be comprehensive and disinterested. "Our trade our politics" is never sound statecraft.

Now, in devising this reform the medical profession must, in the interest of the State not less than the profession, take their share, exchanging with the layman their views on many points—the nature of the authority, its membership, the question of the coöption of experts, finance, medical participation, the respective functioning of the different local committees, the use and adaptation of existing institutions and their economical arrangement, and the place and character of the domiciliary medical services.

2. *The Extension and Coördination of Medical Provision.*

Here again is a pressing problem calling partly for unification and simplification and partly for systematic organisation. At present there are inadequacy, unequal provision, and piecemeal effort. We shall never get an ordered scheme in that way. We need a national policy—a programme, so to speak—dealing seriatim with the medical problems of maternity, infancy, children, adolescence, adult life, and old age; with environment of home and workshop; with the prevention and cure of non-infectious diseases as well as infectious; and with the education of the public in hygiene. Here to deal with infancy, and there to neglect it; here to have a "stunt" in venereal disease, and there to provide nothing; here to organise a public medical service, and there to leave all things to chance —is not the way either of science or common-sense. Then we require, in much greater degree, to bring together in proper relation the provision of medical treatment in the home, at the clinic, in the hospital,

[1] I may perhaps venture to commend a perusal of Lawrence Lowell's Government of England (2 vols.) or the little volume on The English Constitution by Walter Bagehot (in Nelson's Series), and the three admirable pamphlets on The Business of Government Ministry of Reconstruction, H.M.S.O., No. 38, 2*d*.).

and in the convalescent institution, not for the pauper class only, but for the whole of society. All this means that the profession should help in the consideration of these matters, for, while they constitute only a section of the community of ratepayers, and therefore have only a share in the decision, their knowledge and experience, and the fact that they must in largé degree undertake the actual working of any scheme, entitles them to a voice in the form of the scheme. For what sections of the population should provision be made? For what forms of treatment? Under what principles as to availability, adequacy, and payment? What is to be the part or lot of the private practitioner in the undertaking? And, lastly, what does the medical profession say to the concurrent operation of three incomplete and independent public medical services (Poor-law, insurance, and public health), and is it possible to unify their divergent claims? and, if so, what should be the basis of payment and its relative burden on the State, on the local authority, and on the income of the patient.

3. *The Future of the Hospital System.*

A third example of problems awaiting us is that of the hospital position. The number of hospitals in England and Wales in 1915 was reported to be as follows:—

	No.	Beds.
General hospitals	594	31,329
Special hospitals	222	13,654
Fever hospitals	755	31,149
Small-pox hospitals	363	7,972
Poor-law infirmaries	700	94,000

This gives us approximately 2600 hospitals with 178,000 beds, of which 700 institutions and 94,000 beds belong to the Poor-law. In regard to this Poor-law accommodation three things must be said here: first, it is provided out of the poor rate and for persons in receipt of poor relief; secondly, of the 636 Poor-law unions only 54 possess separate infirmaries (of which 26 are in metropolitan unions), 331 unions have "sick" beds in the curtilage of the workhouse, and the remaining 251 unions have no special in-patient accommodation; and thirdly, a large proportion, perhaps even one-third, of the in-patient accommodation in all the Poor-law institutions is empty. These points are important when considering the practicability of transfer of Poor-law beds to the general community. No doubt from the medical point of view the community stands in urgent need of more hospital accommodation—we have overcrowded hospitals and long waiting lists on the one hand, and on the other inability to build new hospitals and yet many empty Poor-law beds. But the solution is not as simple as it looks, and the situation is complicated by many other hospital problems too often overlooked. Let me name some of them. Is the principle of voluntary financial support to continue in our hospital system, or is the profession in favour of Government aid and some measure of Government control? Ought the hospital accommodation of the community to be allocated by the State in respect of area or type of clinical work undertaken, or ought it to continue to be provided in haphazard fashion? Is the medical and surgical staff to remain honorary? Is it to be a special professional class, or composed in part, at least, of general practitioners? What is to be the relation of hospitals to each other and to contributory clinics, and to the insurance system? How are we to bring about the substantial reform of the out-patient departments which is so greatly needed? Ought we to make provision for paying patients, and, if so, on what basis? Can we fairly provide for the insured and the pauper whilst neglecting to provide for the remaining majority? And, lastly, what can be done to reorganise after-care and the proper convalescent treatment of the patient? These are some typical issues which arise, and they are but illustrations, for their right answers they require medical as well as lay judgment and experience.

4. *Medical Education.*

A fourth subject, and perhaps the most important of all, is an adequate method of medical education which shall equip the undergraduate and the practitioner. The new services of the doctor to the State call for a reconsideration of the whole business of education and equipment. A different kind of doctor is needed in these new times. It is clear he must have no less of the learning and skill of former days, whilst he must also be furnished with an improved training in new subjects, in preventive medicine and in the political science of communal responsibility. We are all convinced that the pivot of the profession is the general practitioner. If he is properly equipped the future is safe. Some specialisation of practice there must be, for no man, be his powers what they may, can be master of all branches of medicine. Nevertheless, it is incumbent upon us to recognise that such diseases as tuberculosis and venereal and heart disease will never come under control until and unless the general practitioner is in a position to deal with them. Much of the special provision which has been made by the State in recent years has been necessary, first, because of the need for institutional accommodation to effect cure, and, secondly, because adequate treatment by the private practitioner was unavailable. In my view the State should never take out of the hands of the general practitioner, whether in contractual practice or otherwise, the patient whom he is willing and competent to handle on reasonable terms. The difficulty has been that the practitioner has not been in a position to render the medical service required by the State. It is evident that the solution is dependent partly upon reform in the medical schools—a reform which, happily, is proceeding rapidly—and partly upon adequate arrangements for graduate education for the practitioner, and may I add, willingness on his part to avail himself of the facilities which are provided. There is much remaining to be done in both directions, but before substantial progress can be achieved there is first considerable apathy to be overcome and a fuller apprehension of the needs of the situation; and secondly, the further education of the practitioner must include an adequate professoriate, hospital and laboratory accommodation, and proper organisation.

5. *The Advancement of Humanism.*

As this section is concerned with "Medical Sociology," I venture to suggest one other sphere in which the medical man of this new age may put in his oar. It is not only an intellectual or medical advance of which our country stands in need. Closely akin to it there is a social need. Men are great in proportion as they absorb the best life of the world in which they live—its ideas, knowledge, hope, fears, aspiration—and quicken these anew in the minds of other men. As Sophocles said—

> "Much is there passing strange,
> Nothing surpassing mankind."

No medical man who is in a right sense a man of the world can have failed to ponder often on the near relationship which obtains between the practice of medicine and the social life of the people. It has often been said our patients are not "cases," but men, women, and children, each with a separate personality, environment, heredity, and variation, with individual habits, training, temperament, and psychology. We cannot be wise healers of the patient or the community without a large sympathy and a liberal humanism—that fuller humanity with which the Oxford reformers inspired the Renaissance.

We are the witnesses of a strange and rapid transition in the life of the people as a whole, an enlarging franchise and new social complexes. Higher wages, shorter hours of work, increased leisure, high prices, and democratic aspirations are not remote from the national health and well-being. The doctor must be the missionary of hygiene—the chief educator of the people in the way of health. In being that, he cannot escape his share of responsibility in the study and handling of many of the medico-sociological questions which surround us—education, recreation, housing, the conditions of industry, sobriety, cleanness of living, the prevalence of venereal disease, prostitution, the

penal laws, the causes of certain crimes, the integrity of family life—all such questions concern us, and to fulfil our vows we must be concerned with them. The cultivation of international science, coöperation, and amity should also, I think, be added. It is essential that we should remember that whilst these issues belong to the warp and woof of medical polity the decisive factor is not medical, and movements in favour of their determination on medical grounds only are doomed to failure. Let me remind you of a famous passage in Huxley's lecture at Oxford in 1893 on "Evolution and Ethics." He had been speaking of the cosmic process of Nature, and he said (p. 33):—

Social progress means a checking of the cosmic process at every step and the substitution for it of another, which may be called the ethical process, the end of which is not the survival of those who may happen to be the fittest in respect of the whole of the conditions which exist, but of those who are ethically the best. The practice of that which is ethically best involves a course of conduct which in all respects is opposed to that which leads to success in the cosmic struggle for existence. In place of ruthless self-assertion it demands self-restraint; in place of thrusting aside or treading down all competitors it requires that the individual shall not merely respect but shall help his fellows; its influence is directed not so much to the survival of the fittest as to the fitting of as many as possible to survive. It repudiates the gladiatorial theory of existence. It demands that each man who enters into the enjoyment of the advantages of a polity shall be mindful of his debt to those who have laboriously constructed it; and shall take heed that no act of his weakens the fabric in which he has been permitted to live.

These words are even more timely to-day than they were when they were spoken. He added—

Most men are agreed that the proportion of good and evil in life may be very sensibly affected by human action. ..... So far as we possess a power of bettering things it is our paramount duty to use it and to train all our intellect and energy to this supreme service of our kind.

The claims of the State on the profession have greatly increased owing to the advance of medicine and its manifold applications. A new and closer relationship between them is inevitable. It can be profitable in the public interest only by good understanding. There is something due from each to the other. The profession is responsible for its own contribution—a contribution which consists partly in a correct diagnosis of its own disabilities and the conflicting and prejudicial tendencies within its own body, partly in a fuller understanding of the needs of the State and partly in readiness to make itself thoroughly well equipped and competent to render the remarkable public service which in this generation has fallen to its lot.

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By ARTHUR W. M. ELLIS, B.A., M.B., M.R.C.P.LOND.,
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AT a meeting of the Société des Hôpitaux de Paris on Jan. 23rd Sicard and Kudelsky[1] described four cases of a new affection to which they gave the designation "encephalite aigue myoclonique." The disease as described by them was characterised by the onset of lancinating neuralgic pains with fever, followed by the appearance of short, rapid, explosive, rhythmical, muscular contractions resembling those produced by electrical stimulation. There were no ocular disturbances and no somnolence; on the contrary, insomnia was the rule. Finally, the speech became short and staccato, the gestures automatic, delirium almost constant, the muscular contractions diminished, the patient became comatose and died.

Sicard called attention to the exact resemblance of these cases to the series of cases described by Dubini in 1846, and to which the latter gave the name of electric chorea. Sicard discussed the probable common ætiology of this condition and lethargic encephalitis. Netter in the discussion insisted on the identity of this myoclonic condition with encephalitis lethargica, and stated that he had seen patients presenting the picture described by Sicard pass into the condition of typical lethargic encephalitis.

Following this discussion, reports of similar cases were given by Carnot and Gardin,[2] Œttinger,[3] and Netter.[4] In February, 1920, Briant and Rouquier[5] described seven cases in which delirium and hallucinations were the most prominent symptoms. The patients were restrained with difficulty, were often violent, their features contorted, the face and limbs agitated, with brisk choreiform muscular contractions. Some scratched themselves and tore at the bedclothes. Their speech was scanning. Occasionally they had trismus, slight ptosis, intermittent strabismus, inequality of pupils, retention of urine.

Further instances of such myoclonic and delirious cases, and of cases showing both conditions, in some cases passing into the typical lethargic condition, have been described by Benard and Boissart,[6] Roger and Aymes,[7] Claud,[8] Remond and Minvielle,[9] Eschbach and Belétre,[10] Brouardel, Levaditi, and Forestier,[11] Lereboullet and Foucart,[12] Laporte and Rouzaud,[13] Comby,[14] Bourdillon and Olmer.[15] In Switzerland several observers have also reported similar cases. In America Bassoe[16] has noted delirious forms of lethargic encephalitis, and he and Reilly[17] have both observed twitching of the abdominal muscles. At the meeting of the New York Neurological Society of March 2nd, 1920, Ramsay Hunt[18] reported 12 cases of what he called "acute myoclonus multiplex." Two of these he had seen more than ten years ago and the remaining ten within three months. In the discussion which followed Rosenheck, Leszynsky, Neustaedter, and Leiner reported similar cases. The description of the cases was identical with that given by the French authors.

In Germany Cohn and Lauber[19] have reported eight cases occurring in Stuttgart and similar cases have also been reported by Heiss.[20]

In England no cases of this myoclonic type of encephalitis have, to my knowledge, so far been described, though Buzzard and Greenfield[21] have described similar muscular contractions as a late sequela of lethargic encephalitis.

In the past few weeks three typical examples of acute myoclonic encephalitis, as described by the French authors, have come under my care in the London Hospital. All three presented the combination of insomnia, followed by acute delirium and rhythmical spasmodic contractions of muscles. In all the abdominal muscles were most affected.

CASE 1.—W. S. P., age 17, labourer; admitted London Hospital May 24th. Eight days before admission patient vomited and had severe pains in the lower abdomen and thigh. These increased in severity, and about four days before admission he began to have twitching of the muscles of the thighs and abdomen. He walked to see the doctor (50 yards) on May 20th and again on May 21st. The night of May 22nd and 23rd patient was delirious. He had not slept for a week before admission, and the bowels moved only once in five days, and then only with the aid of an enema. The insomnia was very distressing. For two days before admission there was difficulty in voiding urine.

On admission, temp. 101° F., pulse 100, respirations 36. Patient is in a very restless excited state; eyes bright and staring. Quite conscious, and answers all questions sensibly, but frequently lapses into a low muttering delirium. Face pale, tongue dry, brown, furred, much sordes on gums and lips. Pupils widely dilated, equal, react to light and accommodation. Slight left internal strabismus (said to date from childhood). No facial paralysis, no ptosis. Twitching movements of both extremities and of fingers of both hands.

There are rapid rhythmical shock-like contractions of the abdominal muscles, chiefly the recti abdominales. These occur occasionally bilaterally, but usually confined to one side. The muscle is very forcibly contracted and the umbilicus displaced. These contractions occur at a rate of about 30 to the minute, but the rate and rhythm are irregular. The movements consist of two main varieties, one in the upper segment of the abdomen and the other in the lower. The former consists of sudden contractions of the recti, usually unilateral. The contractions are usually confined to the upper half of the muscle, so that the umbilicus is pulled towards the epigastric angle. Less frequently a similar contraction occurs in the lower half of the muscle. The second main type of movement consists of similar contractions in the oblique muscles, giving a lateral pull in the lower segment of the abdomen.

May 25th: Lumbar puncture; clear fluid; cell count, 17 per c.mm.; protein, very slight increase. The urine contains trace of albumin, but is otherwise negative.

27th: Condition much the same but is more restless and excited. Did not sleep at all last night in spite of morphia and hyoscine. Frequently tries to get out of bed. Bladder distended, requires catheterisation. Bowels have not moved since admission. Pupils widely dilated; sweating profusely. Movement of abdominal muscles continues. Tendon reflexes in arms and legs all normally active. Coarse fibrillary twitchings of the muscles of the extremities. Speech explosive and indistinct.

28th: Seems slightly better, but still has not slept; occasional delirium. Muscular contractions unabated. Requires constant

catheterisation. Temperature 99·2°, pulse 120, respirations 38. W.B.C., 15,000; polys., 75 per cent.; eos., 1·5 per cent.; small lymphocytes, 11·5 per cent.; large lymphocytes, 2 per cent.; large hyaline, 10 per cent.

29th: Distinctly better, quiet, no delirium; still hardly sleeps at all, but occasionally dozes for a few minutes. Myoclonic movements still continue. Patient is wasting rapidly. Temperature 98°, pulse 120, respirations 28.

31st: Slowly improving; now quiet mentally, but still only dozes occasionally; myoclonic movements continue, but are becoming less forcible. Requires constant catheterisation.

June 1st: Steadily improving; slept for a few hours last night. Myoclonic movements in recti continue 30 to 40 to the minute, affecting both upper and lower segments, more often the former. Mental condition clear; no weakness of eye muscles; no facial asymmetry; no disturbance of sensation; no disturbance of sense of position. Tendon reflexes: arms, present; knee and ankle jerks absent on both sides; plantar reflex gives downward movement of the great toe.

3rd: Yesterday not so well. For the past two days there has been evening fever, temperature of 99·6° to 99·8°. Some delirium during the day yesterday, but when spoken to was quite bright and intelligent. Delirium during the night; only became quiet after two injections of morphia. To-day quiet and perfectly rational. Pulse rapid, 140. Pulse has not been below 120 for the past three days. Pulse regular and good volume; heart action shows no disturbance beyond that of rate; area of cardiac dullness not enlarged; heart sounds clear. Pupils no longer dilated. Myoclonic movements of recti muscles continue, intensity about as on June 1st. There are myoclonic contractions of moderate intensity of the hamstring muscles of both thighs. Sudaminal rash over face, chest, and abdomen.

4th: Condition much the same. Quite quiet. Myoclonic contractions of abdominal muscles continue. Speech is sputtering and difficult to understand. Slight fever; temperature 99° to 100° every evening. Pulse continues rapid, 120 to 140. Urine negative.

7th: On the morning of the 5th patient again became restless, excitable, and delirious, and this has steadily increased. This morning he is in a state of wild delirium. He is constantly on the move, grimacing with his face, and throwing his arms and head about. Quite often he will clasp his face with both hands, and frequently with both hands tears at the back of his neck. There is an incessant muttering delirium of which only occasional words can be made out. Sometimes he appears to think that he is boxing. Occasionally he recognises the people about him. He can be roused to understanding and can be made to take food, but to-day has apparently some difficulty in swallowing. Urine only by catheter; incontinence of fæces this morning. The temperature has not been above normal since the evening of the 3rd; pulse constantly 125 and over. The myoclonic movements of the abdomen have ceased; those or the thighs are still present. Morphia has no effect in quieting patient, but hyoscine is more efficient.

Lumbar puncture: clear fluid; cell count, 14 per c.mm.; protein, slight excess.

10th: Mental excitement and delirium continue. Never quiet except when under hyoscine, which seems to be the only drug that is of any value. Even under hyoscine there is almost constant activity. Patient evidently has constant visual hallucinations to which he responds. The arms are constantly on the move in what are evidently purposeful movements. These consist chiefly of what is apparently boxing and gymnastic exercises. (Before his illness patient spent much of his time at a boys' club, and in his delirium he constantly imagines himself there.) He has occasional attacks of violent temper, in which he strikes out at the nurse or whoever is about him. At these times his face assumes an expression of great cunning and malignancy. He can be roused to consciousness, and when roused understands what is said and does what he is told. He is taking his food a little better. The wasting has now become very marked, and the skin over the arms, shoulders, and thighs is raw from the rubbing of the bedclothes during the incessant movements. There are spasmodic contractions of the biceps muscles. The pupils are constantly widely dilated. Since June 6th there has been a marked change in the clinical picture. Before that time the muscular movements dominated the picture. Since that time the muscle spasms have been absent or insignificant, the predominant feature being the restlessness and incessant movement. The patient throws himself about and is for ever on the move.

14th: Since the 12th patient has been lethargic. He lies absolutely quiet with the eyes half open; is roused with difficulty, and can be made to take food only with great difficulty. Face and eyes sunken; emaciation marked; pulse good. For past two days patient has had some cough and sputum, and he is running low evening fever. Very constipated, constant catheterisation necessary.

15th: Died at 3 A.M. to-day. A few hours before death temperature rose to 104·8°.

CASE 2.—F. W., age 6 years, schoolboy; admitted London Hospital May 25th. Five days before admission patient vomited. The next day he complained of sudden pain in the back and lower abdomen and in the thighs; the pain was so severe as to make him cry out. Two days before admission his mother thought he seemed drowsy, and one day before admission he began to have twitching of the muscles of the left arm.

On admission, temperature 99°, pulse 100, respirations 24. Somewhat drowsy, but perfectly intelligent, and answers all questions readily. Pupils dilated, react to light and accommodation. There is no strabismus, ptosis, or nystagmus, and no facial asymmetry. There are forceful rhythmical, shock-like contractions of the lateral muscles of both sides of the abdomen, more marked on the right side. The recti abdominales are not affected. There are similar but more rapid and less forceful contractions of the muscles of the left shoulder girdle and left arm, especially the biceps, deltoid, and pectorals. The bladder is not distended. Tendon reflexes: arms and legs, present; no disturbance of sensation. Heart and lungs negative.

Lumbar puncture: clear fluid, cell count 7 per c.mm. Urine: trace of albumin.

May 27th: Not so well, has not slept at all, and has been restless, excited, and delirious, trying to get out of bed. Eyes bright and staring, pupils widely dilated; no strabismus, ptosis, or nystagmus. Both arms show continuous muscular rigidity, and in both arms rapid rhythmical contractions of slight degree constantly recur at a rate of 70 to 90 to the minute, resulting in fine continuous twitching movements of the arms and hands. The most striking feature, however, is the shock-like rhythmical contractions of the abdominal muscles. These are so forceful as to shake the bed, and can easily be seen from across the ward. They occur at the rate of about 30 to the minute. They consist of shock-like contractions of short duration of the abdominal wall, chiefly of the lateral abdominal muscles. On each contraction the affected side of the abdomen flattens and dips in, pulling in the lower ribs and giving a jerking upward elevation of the pelvis on the affected side. There is no evidence of involvement of the diaphragm, no disturbance of phonation, and respiration continues quite unaffected by these involuntary movements. On palpation the muscles can be felt to undergo strong contraction. There is a striking preponderance of left-sided movements; on admission there was right-sided preponderance. At rest the movements recur at a relatively regular rhythm. At short intervals right-sided movements are irregularly interpolated. Tonic contraction of the abdomen, as evidenced in crying or holding the breath, exercises a very definite inhibitory effect on the contractions.

28th: Patient is highly excited, talking constantly, calling to his friends and brothers. His facial expression is extraordinary, he grimaces constantly, and frequently assumes an expression of low cunning and great malignancy, plucking at the bedclothes, picking his nose, and tries frequently to get out of bed. There are obvious hallucinations of sight and hearing. There is slight internal strabismus. Patient sweating very profusely, beads of sweat over his face. Requires constant catheterisation.

29th: Condition much the same. Very excited, has had to be put in seclusion. Did not sleep at all during the night, restless and excited. Myoclonic contractions continue. At 8 o'clock A.M. temperature 102°, pulse 132. There is a faintly vesicular, miliary, sudaminal rash over the forehead, and especially marked over lower eyelids, upper lip, and chin. This rash is identical with that seen in Case 1. Tendon reflexes in arms and legs not elicited. W.B.C., 21,800; poly., 77 per cent.; eos., 0 per cent.; small lympho., 10·5 per cent.; large lympho., 4·5 per cent.; large hyaline, 5 per cent.

30th: Still excited and delirious, but slept a few hours last night. Muscular movements still present. Answers questions rationally and takes food well.

31st: During yesterday patient gradually grew weaker, finally became comatose, and died early this morning.

CASE 3.—M. N., Jewess, age 28, married, six months' pregnant. Admitted London Hospital, May 26th. One month before admission patient vomited and felt giddy. Then she had a sensation of pins and needles all over her body; this persisted. There was obstinate constipation. For 14 days previous to admission patient has had complete insomnia and is said "never to have slept." Some days before admission she began to have twitching of the muscles and difficulty in urinating. There was some blurring of vision but no diplopia.

On admission, temperature 101·4°, pulse 100, respirations 28. Patient rational but very talkative and excitable. There are constant rhythmical shock-like movements of the abdomen and occasional twitching movements of the thighs. The pupils are dilated, equal, and react to light and accommodation. There is paresis of the external rectus of the right eye and of the right side of the face, and ptosis of the left lid. Well-marked lateral and vertical nystagmus. Tendon reflexes of arms and legs not elicited, plantar stimulation gives downward movement of the great toe. Abdominal reflexes absent. No disturbance of sensation. Urine negative.

Lumbar puncture: clear fluid; cell count, 6 per c.mm.; protein very slightly increased.

May 28th: Temperature 101·4°, pulse 120, respirations 24. During yesterday morning patient became highly excited, constantly talking, pulling at the bedclothes, and trying to get out of bed. Hyoscine gave no relief and was repeated; following second dose she became quiet and stuporous. Cyanosis marked. Pulse small, rapid, and palpable with difficulty. Following lumbar puncture she again roused, seemed stronger, and grew very excitable. Excitement and delirium persisted all night. This morning she is quieter and seems better. Requires constant catheterisation. Speech is jerky and slurred.

There are forceful, shock-like movements of the abdominal wall recurring in fairly regular rhythm at a rate of about 30 to 40 to the minute. These are predominantly left-sided; in one observation 18 left to 5 right. The movements are exactly as described in Case 2—i.e., a rhythmical sudden flattening of the affected side of the abdomen, with a pulling down of the lower ribs and a lifting upwards of the pelvis on the affected side. The muscles chiefly affected appear to be the lateral muscles of the abdominal wall and the recti abdominales.

29th: Condition unchanged, very restless and delirious, but still has lucid intervals in which she answers questions quite intelligently. No sleep, in spite of heavy doses of soporifics. Muscular movements unchanged.

W.B.C., 16,800; polys., 77·5 per cent.; eos., 0 per cent.; small lympho., 9 per cent.; large lympho., 7·5 per cent.; large hyaline, 5·5 per cent.; coarsely granular basophilic cells, 0·5 per cent.

31st: Temperature 100°, pulse 100, respirations 28. Yesterday patient was quieter but still sleepless. This morning quieter, semi-comatose, with muttering delirium. Pulse weaker. Muscular shocks as frequent, but less forceful than formerly. Maximum temperature since admission 103°, on the evening of the 29th, minimum morning temperature 100°.

June 1st: Patient has been quiet since yesterday morning, and is now definitely lethargic. She can, however, still be roused, and when roused answers questions intelligently. She at once relapses, however, into unconsciousness with low muttering delirium. The myoclonic movements of the abdomen continue, but much less forcibly than before. Constant catheterisation has been required since May 28th. The eyes are now kept constantly closed and the pupils contracted. There is slight conjunctivitis of the left eye for the first time to-day.

3rd: There was no marked change in patient's general condition yesterday, but she gradually grew worse and died early this morning

Remarks.

It will be seen that these three patients, admitted to the London Hospital within a period of three days, presented a clinical picture of striking similarity, and one which conforms accurately with the descriptions of acute myoclonic encephalitis in the foreign literature. In all three cases the initial symptom was vomiting, followed in two of the three patients by severe pain in the lower abdomen and thighs. There was obstinate constipation and difficulty in urination, followed in every case by complete retention. Insomnia was severe and led up to a wild delirium of the delirium tremens type; in one patient the insomnia was preceded by drowsiness. In all cases the most striking feature was the forceful, shock-like contractions of the abdominal muscles, which occurred at the rate of 30 to 40 to the minute. The pupils were widely dilated, there was profuse sweating and tachycardia. Fever, usually of low degree, was present in all. In two of the three speech was affected, jerky, indistinct, and slurred. Paresis of the eye muscles was present in one case and doubtful in another. One patient showed nystagmus. All three patients showed a well-marked leucocytosis, with a slight relative increase of the polynuclears. The urine showed a trace of albumin in two cases. The spinal fluid showed a very slight increase of cells and protein in all three cases, in two of these barely above the possible normal variation. In all three patients the disease was fatal.

Autopsies were obtained on two of the three patients. There were no gross lesions to be seen, except a moderate degree of cerebral congestion. Histological examination has not yet been completed, but will be reported in due course.

Two points observed in these patients do not seem to have been hitherto described—the leucocytosis and the dilatation of the pupils. It is interesting that with the onset of coma the dilatation of the pupils disappeared.

That these myoclonic cases are really epidemic encephalitis caused by the same ætiological agent as the lethargic form remains, of course, yet to be proved. But epidemiological and clinical evidence certainly strongly suggests their identity, and the scanty histological observations as yet available support this opinion.[24] It is worthy of note that all three of these patients became comatose before death, the condition in Case 3 being indistinguishable from that of an ordinary case of lethargic encephalitis. On the other hand, the occurrence of a leucocytosis in these cases is of interest, as in the lethargic forms Vaidya and Boyd[22] and Edwin Bramwell[23] have found no such increase of leucocytes. This point of difference would therefore seem worthy of further investigation, especially as in our cases no complicating factors which would explain the leucocytosis were present.

If the ætiological agent is the same, the occurrence of this new form of case, which in the opinion of the French authors amounts to a fundamental change in the type of the disease, is presumably associated with a tendency of the virus to new localisation in the central nervous system. Such a change is of profound interest, both in the general problem of specific localisation of infections, and in the narrower problem of the change of characteristic localisation of a given infection during its epidemic evolution. The fundamental principles underlying these problems remain as yet almost unsuggested.

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SUPPRESSION OF URINE IN PREGNANCY AND THE PUERPERIUM.

ITS RELATION TO SYMMETRICAL NECROSIS OF THE RENAL CORTEX.[1]

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SUPPRESSION of urine is a very rare complication of pregnancy or the puerperium, but it is an extremely dangerous one. It has been my fate to have seen 12 cases, and 6 of these have been proved by post-mortem examinations to have been due to symmetrical necrosis of the renal cortex. Particulars of five of these cases of necrosis have already been published in *The Lancet* and *Journal of Pathology*; the sixth case is described below in full, and also a case of suppression of urine from chronic interstitial nephritis. I have also seen another case of eclampsia with suppression of urine which I believe was one of cortical necrosis, but I was unable to obtain a post-mortem examination of the kidneys. I have not included the case in this paper.

As suppression of urine is an outstanding feature of symmetrical cortical necrosis I append notes of some of those other cases which I have seen from the clinical aspect only, so that they may be compared and contrasted with those that have been proved post mortem. Two occurred during pregnancy, and but one—a partial suppression only—recovered.

CASE 1. *Complete suppression of urine at the seventh month of pregnancy; fatal.*—Mrs. McA., primigravida, aged 22, about seven months pregnant, was transferred after a few hours in the Glasgow Royal Infirmary to the Maternity Hospital on March 14th, 1906. On admission the patient was conscious but very restless, and frequently asked for a drink. Her right arm was quite limp; the pupils were equal, active, and normal in size. The pulse was 132 and very weak. The heart sounds were pure. The uterus was about the size of a seven months' pregnancy. No fœtal heart sounds could be heard. The breech presented. The patient could not give an account of her condition previous to admission, but her husband stated that for three months there had been swelling of the legs and that she had not been able to do housework. During the last two weeks she had complained of dizziness and headache at times. There had not been any convulsions, but her husband had noticed twitchings of her face just before she was taken to the Royal Infirmary. Half an ounce of urine was obtained by catheter. It was heavily loaded with albumin and contained granular casts.

The treatment consisted of free purgation, saline transfusion, and stimulation. The bowels moved freely, but no more urine was excreted. No convulsions occurred. She died ten hours after admission. We were unable to ascertain how long the suppression had lasted, and unfortunately we could not get a post-mortem examination.

There may have been cortical necrosis, but I am inclined to think it was a case of chronic nephritis, similar to Case 11. The three months' swelling of the legs, dizziness, and headache, point to this.

CASE 2.—*Partial suppression of urine at 6½ months of pregnancy; recovery.*—Mrs. P., primigravida, aged 37, about 6½ months pregnant, was seen by me in consultation with Dr. W. Clow, of Paisley. There had been nothing unusual in the early months of the pregnancy, but on April 7th, 1906, slight bleeding had commenced. The patient was kept in bed for three weeks, and there was a slight "show" of blood all this time. On May 1st swelling of the legs began and slight swelling of the hands and face. By May 5th the swelling had increased, but a careful examination of the urine gave no trace of albumin. Seven days later the urine was found to be heavily loaded with albumin, and to contain tube casts but no blood. The swelling of the legs had increased, and the patient had had headaches occasionally and had vomited once. On May 14th the albumin amounted to 12 per 1000 (Esbach), and on the 16th to 9. She was taking a diuretic and the bowels were being kept freely opened. On May 16th the patient became very excited, and complained of violent headache. About 8 P.M. she became delirious and apparently quite blind. Dr. Clow at once bled her from the arm to the extent of 20 oz. There was immediate improvement of the sight and of the mental condition, and the headache lessened. May 17th: During the night there was much wandering and vomiting occurred seven times. Patient did not know anybody. No urine had been passed since 10 P.M. on the 16th. She was put into a hot pack in the afternoon. I saw her about 5 P.M. She was very

[1] A paper read before the Edinburgh Obstetrical Society on May 12th, 1920.

restless, and continually muttered words which I could not understand. She would not reply when spoken to. No urine had been passed for 19 hours.

She was given 30 oz. of saline solution (acetate and chloride of sodium) under the right breast, and delivered by dilating the cervix by means of Bossi's dilator. There was lateral placenta prævia. I did bipolar version and perforated the aftercoming head to lessen the strain on the cervix. There was very little bleeding and no tearing of the cervix. Twelve ounces of urine were obtained by catheter. Next morning 24 oz. of urine were drawn off, and in the evening 36, so the kidneys were acting well and continued to do so. In a fortnight there was only a faint trace of albumin to be found.

In this case there was only partial suppression, but there was a marked toxic effect indicated by the blindness, delirium, and vomiting. There were no fits, but to all intents and purposes it was a case of eclampsia. Dr. Clow probably saved this woman's life by bleeding her so freely. Perhaps it would be more accurate to describe this case as one of marked diminution in the secretion of urine, as there never was complete suppression. I think it was a case of the kidney of pregnancy with very marked toxæmia. If there had been chronic nephritis present I do not think the result would have been so good.

CASE 3. *Suppression of urine after Cæsarean section; fatal.*—The Cæsarean section was done for a badly contracted pelvis. When a catheter was passed some hours after the operation 3 oz. of urine were obtained. It was very dark in colour and showed evidence of carboluria. The abdomen had been prepared by a carbolic dressing, and the gauze swabs had been wrung out of a weak carbolic lotion. Next day 9 oz. of urine were obtained. It was clear, but contained albumin and tube casts. Next day 11½ oz. were obtained in 12 hours, and only 2 oz. in the following 12 hours. From that time until death over three days later only 1 drachm of urine was secreted. The albumin had lessened considerably.

Most active treatment was tried, including various diuretics, free purgation, vapour baths, saline transfusion, cupping, and poulticing over the kidneys and bleeding. She gradually became more and more comatose, and there was a distinct urinous odour from her breath. Just before death she had a violent general convulsion which lasted for about one minute.

The pathological examination of this case, which occurred some 22 years ago, was done by Dr. R. M. Buchanan, and the following details are extracted from his report:—

The capsules of both kidneys were slightly adherent, and the cut-surfaces showed well-marked congestion, particularly the pyramidal areas, which contrasted with the pale yellowish but red-streaked cortex. Microscopical examination showed that the tubules of the cortex were almost uniformly dilated, the epithelium compressed, and the lumen filled with granular material. A number of the straight tubules were also dilated and occupied by similar granular material. The malpighian bodies and the blood-vessels appeared normal. The liver showed chronic venous congestion.

From this report it is evident there was chronic nephritis present, but not in such a marked degree as in Case 11. I reported this case to the Edinburgh Obstetrical Society in 1898 (Vol. XXIII. of Transactions). In the many hundreds of Cæsarean sections which have been done in the hospital this is the only one in which suppression of urine occurred.

CASE 4. *Suppression of urine after a normal labour; fatal.*—The patient, a primipara, aged 19, was delivered of a live female child by natural efforts after a labour of 12 hours' duration. On admission a catheter was passed, but the bladder was empty, so no specimen was obtained for examination. During the first few days of the puerperium a considerable quantity of urine was voided, but it was not examined, as it was contaminated with lochial discharge. The patient did not complain, but she had a greyish appearance and looked decidedly ill. She was not septic and the heart and lungs were normal. A catheter was passed on the sixth day of the puerperium, and about ½ oz. of urine was obtained. It showed a deposit of ¼ of albumin and a large number of granular casts. Previously to the passing of the catheter the urine had been freely excreted, but from that time onwards there was complete suppression, with the exception of 2 drachms three days later. She died on the fourth day of the suppression. Towards the end the breath had a distinct urinous odour and hiccough and retching occurred. Just before death she had a slight convulsion.

The treatment consisted in the use of diuretics, cupping, hot packs, purging, pilocarpine, and amyl nitrite.

No post-mortem examination was allowed. The presence of the granular casts indicate that nephritis was present. The case was probably the same as Case 11, to be described.

The clinical and pathological accounts of Cases 5 and 6 have already been published in detail in the *Journal of Pathology and Bacteriology*, Vol. XV. (1911), and in the Transactions of the Edinburgh Obstetrical Society, Vol. XXXI. Cases 7, 8, and 9, were fully recorded in THE LANCET, 1913, i., 615, and in the Transactions of the Edinburgh Obstetrical Society, Vol. XXXVIII. The essential features only of these cases are abstracted here.

Nos. 5, 6, 7, 8, 9, and 10 were cases of cortical necrosis and ended fatally.

CASE 5.—The patient, a 7-para, aged 36, was seven and a half months pregnant when she was admitted to hospital suffering from fits, unconscious, and with considerable œdema of face, legs, and lumbar region. The urine was loaded with albumin, becoming almost solid on boiling. She was at once bled to the extent of 12 oz., and 2 pints of the usual saline solution transfused. A hot pack was applied, the stomach washed out, and salts and chloral hydrate given. Next day 35 oz. of urine were passed containing 1 per cent. albumin and tube casts, and on the following day a dead fœtus was born. The urine obtained on this morning contained 0·2 per cent. albumin, but from about mid-day suppression of urine became complete except for the passage of ½ oz. of urine two days later and 1 oz. three days later. Patient was quite conscious and clear mentally by this time, and decapsulation of the right kidney was performed on the following day. Patient became restless after the operation, complaining of abdominal pain, but there were no convulsions. She died ten hours after the operation, there having been about five and a half days anuria.

CASE 6.—The patient, aged 22, was eight months pregnant when admitted to hospital suffering from œdema of feet and legs of several weeks' duration. She had had eight fits during the four hours preceding admission, and with the onset of the fits she had become totally blind. On admission her condition seemed to be very critical. The œdema was marked and the face bloated. She was unconscious, restless, and passed urine and fæces involuntarily. Four more fits occurred in rapid succession. She was bled, given a saline infusion, and a rectal injection of chloral and bromide, and put into a hot pack. The urine was found to contain abundant albumin, a trace of blood, and granular tube casts. She improved somewhat and next day gave birth to a dead child of 4¼ lb. Twelve ounces of urine had been passed in 24 hours. On the following day she was worse and the face and extremities were cold and livid, not unlike a degree of Raynaud's disease. She had no more fits, but made no progress, and died some seven days later, the suppression of urine persisting. The suppression was almost but not absolutely complete, as 1–2 oz. of urine were obtained each day.

CASE 7.—The patient, a 9-para, seven months pregnant, was admitted to hospital, extremely blanched and collapsed, suffering from concealed accidental hæmorrhage. There had been œdema of feet and legs for two weeks and abdominal pain for one week before admission. Saline infusion was given and stimulants were administered freely. The patient rallied and in about three hours delivered herself of a dead 3½ lb. fœtus. The placenta was unhealthy and the chorion partly adherent necessitating removal. A large amount of blood clot was expressed. The patient improved after delivery, but suppression of urine remained complete from admission. The bladder had been found empty when a catheter was passed on the day of admission, and the patient stated that the last time she passed urine was about 12 hours before admission. The loins were cupped and poulticed, rectal salines administered, and the bowels kept freely open by magnesium sulphate. The complete suppression persisted, but the patient remained quite conscious and suffered no inconvenience except for occasional attacks of dyspnœa. There were never any convulsions, but the dyspnœic attacks became more frequent and she eventually died four and a half days after the onset of the complete suppression of urine.

Although there had been no convulsions the case was looked upon as being of this nature and the typical eclamptic lesions were found post mortem. A number of other cases in which all the indications of eclampsia were present except convulsions have come under my observation, and in one, which proved fatal, Dr. Kennedy found post mortem the lesions typical of eclampsia. It is interesting to note that this case of suppression (Case 7) was a case of concealed accidental hæmorrhage. By some, toxæmia of pregnancy is held to be the cause of accidental hæmorrhage, and there is no doubt that it is present in some of them.

CASE 8.—The patient, aged 38, 2-para, was admitted to hospital suffering from œdema of feet and legs of six months' duration and bad albuminuria. The urine was loaded with albumin and showed pus cells and granular casts. On the following day live twins of 4 lb. and 4½ lb. respectively were delivered spontaneously. In the next 24 hours only 1 oz. of urine was excreted; the patient's face became œdematous, and persistent vomiting was troublesome. The next day the patient became semi-comatose, and but 1 oz. of urine was excreted. Early in the following morning the patient had a convulsion in which she died. This was the only fit, and the suppression of urine had lasted about 2½ days. The treatment adopted was free purgation, salines by infusion and by the rectum, and free stimulation.

In this case it may also be urged that, as the only convulsion occurred immediately before death, it was not a case of eclampsia, but one of uræmia. From the clinical point of view the case was considered to be one of eclampsia, and the post-mortem findings confirmed this diagnosis.

CASE 9.—The patient, a primipara, 4½ months pregnant, was admitted to hospital under the care of Professor M. Cameron, with œdema of the face of several weeks' duration and severe headache, vomiting, and failure of vision since the day before admission. On the day of admission to hospital she became somewhat comatose, and had several fits. The urine contained so much albumin that it became solid on boiling. The uterus was emptied, two pints of saline given subcutaneously, the stomach washed out, magnesium sulphate and bromide and chloral hydrate administered. There were no more fits, and for two days she kept well and passed a fair quantity of urine. A day later, however, she began to vomit blood, and complained of epigastric pain, and was troubled with hiccough. Vomiting of blood-stained fluid persisted during the following day, and tarry motions were passed. The vomiting ceased the next day, but the hiccough persisted. The urine was now becoming scanty in amount, and some abdominal distension and tenderness over the stomach were observed. By the following day complete suppression of urine had set in, and death ensued a day later, the complete suppression having been under two days in duration.

CASE 10.—Mrs. D., 7-para, aged 48, was admitted to hospital on Dec. 31st, 1918, at 7.40 A.M., having being delivered before admission. She was unconscious and had had seven fits. Shortly after admission she had one fit, but no more. All her other labours had been normal, but in her sixth pregnancy there had been ascites and

albuminuria. The urine had not been examined during the seventh pregnancy so far as we could ascertain. The stomach was washed out, magnesium sulphate administered, and two pints of saline solution given under the breasts. There was no urine in the bladder. The face was puffy, but the legs not much swollen. Mustard and linseed poultices were applied over the kidneys. There was no tenderness in the renal region and the patient did not suffer

FIG. 1.

Kidney from Case 10 (5½ days' suppression of urine), showing the more or less uniform necrosis of the outer two-thirds of the cortex separated from the living inner third by a hæmorrhagic zone. At intervals from this zone of congestion numerous strands pass out to the surface. The necrosed area also involves the inter-pyramidal cortex. Both kidneys present similar characteristics.

any inconvenience. On Jan. 3rd dry-cupping was tried, and on the 4th both kidneys were decapsulated by Mr. J. H. Pringle. The patient died the next day, the anuria having lasted about 5½ days.

The result of the pathological examination (A. M. K.) was as follows:—

The body is that of a well-developed, well-nourished, fat woman. It is anæmic-looking, and the face looks a trifle puffy, but there is no œdema of the feet or legs, or elsewhere. There are recent operation wounds in both loins over the kidneys.

Head: No gross œdema of the meninges. Blood-vessels healthy, and no thrombosis in any sinuses. On section two small hæmorrhagic foci, of recent origin, each about the size of a lentil, found about the middle of the upper half of the left side of the pons. Nothing further abnormal in the brain. Microscopical examination of sections prepared from the pons confirmed the findings of the P.M.—viz., the presence of two small hæmorrhagic foci. The larger of the two looked as if it were made up of hæmorrhages from several minute foci rather than from one larger focus, as some of them seemed to be surrounded by areas of degenerate brain tissue, demarcating them from the others. A few small capillaries in the neighbourhood of some of the foci were seen to be thrombosed. Microscopical examination of sections from the cerebrum showed nothing of note.

Thorax: Heart is slightly dilated, muscle soft and rather anæmic. Valves healthy and coronary arteries normal. Microscopical examination: Slight general fibrosis of the myocardium.

Lungs: Slight emphysema anterior margins and slight hypostatic congestion and œdema at both bases behind; these findings confirmed later by microscopical examination. Pleuræ appear healthy.

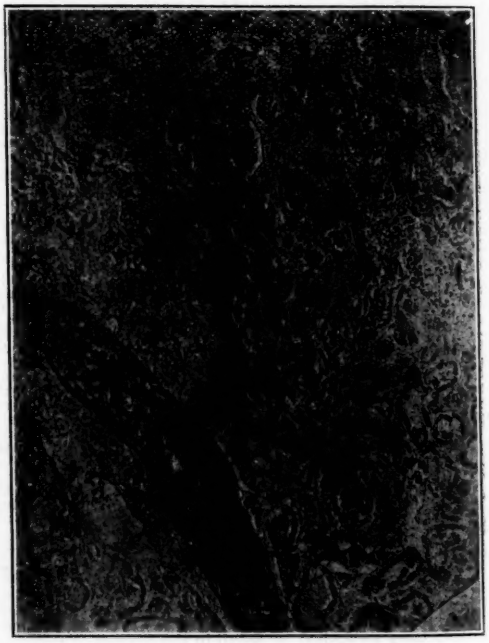
Abdomen: No free fluid present; no hæmorrhages under the peritoneum and no peritonitis. Liver: About normal in size, but appears somewhat fatty. On section, lobules unduly prominent as if there were an excess of interstitial tissue surrounding areas a little larger than a pin's head. No hæmorrhages of any kind under capsule or in substance of liver, and no dilated capillaries visible. Microscopical examination: No areas of focal necrosis or hæmorrhages found, and no thrombosis. Some fatty infiltration present, as shown by fatty globules in the cells at the periphery of a number of the lobules, but of moderate degree only. Capillaries between lobules and in peripheral lobular zones distended in many places, although for the most part somewhat empty of blood. This gave an apparently œdematous look to the connective tissue in these situations and accounted for prominence of lobules noted at the necropsy.

Spleen: Slightly enlarged, pulp full but not septic. Uterus: Evidence shown of recent delivery; one or two small shaggy pieces of placental remains, each a little larger than a pea, still attached to the fundus. Bladder is quite empty. With the exception of the kidneys, all the other abdominal organs healthy.

Kidneys: Both kidneys are somewhat enlarged and show similar characteristics. The capsules have been stripped off completely at operation, and several small pieces of blood-clot are found adhering to the surfaces. The surfaces generally are opaque and pale yellowish-white, but mottled all over with small reddish areas. On section the relative thickness of cortex and medulla appears about normal. The outer two-thirds of the cortex is dull opaque and pale yellowish-white in colour, and apparently completely necrosed. The innermost third of the cortex looks more like living tissue, and is well demarcated off from the necrosed outer two-thirds by a distinct hæmorrhagic zone. At intervals from this zone of congestion small strands of congestion pass into the outer necrosed area, and reaching the surface constitute the reddish mottled areas visible under the capsule. The necrosed area is not confined to the peripheral cortex, but extends into the interpyramidal portion, and everywhere is limited internally by the hæmorrhagic zone, the relations being the same throughout, and a narrow zone of apparently healthy cortex lying immediately next the medulla. At no place can any living tissue be traced passing from the medulla outwards to the surface. The renal arteries are not apparently thickened nor thrombosed, and the pelves and ureters are normal. The condition appears to be one of widespread pale infarction involving approximately the outer two-thirds of the renal cortex, and affecting both kidneys symmetrically.

Microscopical examination: Sections were prepared from several portions of the kidneys and stained with hæmalum and eosin, hæmalum and van Gieson, and carmalum-Gram-Weigert. At the surface immediately under the capsule there is an extremely narrow layer of living tissue, which, however, is not quite uniform. For the most part this layer consists of the fibrous-supporting tissue of the parenchymatous elements, and appears to be in greater amount than normal. It is broken up at many places by the necrosis extending right up to the surface. Between these places, extending a short distance into the kidney, are seen flat wedge-shaped areas in which the parenchymatous elements—tubules and glomeruli—are less necrotic than elsewhere, although many of the tubules are atrophied and a few of the glomeruli appear simply as fibrous tufts. Loose infiltration with polymorph leucocytes is also

FIG. 2.



Microphotograph (× 90) of kidney from Case 10 (5½ days' suppression of urine), showing a dilated and thrombosed interlobular artery near the marginal zone and a thrombosed efferent branch to one of the glomeruli. The section was stained by carmalum-Gram-Weigert specially to show the fibrin. The widespread degeneration of the tubular epithelium, as well as the changes affecting the glomeruli and interstitial tissue, are apparent. Some loose infiltration with leucocytes is just visible.

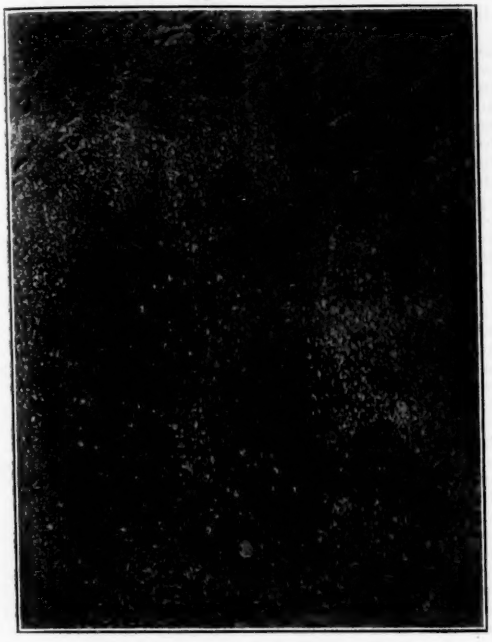
present. In many of these wedge-shaped areas the capillaries show very marked congestion, and correspond to the small reddish areas seen by the naked eye as mottling the otherwise opaque yellowish-white surface. At no place is there any living tissue connecting the medulla with the surface.

In the infarcted area all the structures are in a stage of practically complete necrosis; the cells have become broken up and granular, and the nuclei have disappeared altogether. The outlines

of tubules and glomeruli, however, are still distinct. The greater part of the infarcted area shows coagulation necrosis without any sign of reaction, except in the marginal zone, where the congestion is present. Here the interstitial tissue around the tubules and glomeruli are loosely infiltrated with polymorphonuclear leucocytes, which, however, only penetrate into the periphery of the paler necrotic areas, in which situation many of the leucocytes are seen to be degenerate also.

In the marginal zone there are much congestion and some hæmorrhage. Many of the glomeruli are gorged with blood. As seen by the naked eye, strands of congestion can be traced at intervals passing to the surface, where they form patches of congestion under the capsule. In the marginal zone some of the tubules show a

FIG. 3.



Microphotograph (× 90) of pons from Case 10 (5½ days' suppression of urine), showing one of the hæmorrhagic lesions. Some hæmorrhage is visible in the centre of degenerate brain tissue. Capillaries in the neighbourhood were found thrombosed.

certain amount of degeneration of their epithelium—the epithelial cells being somewhat granular and their nuclei staining less deeply than usual.

In the infarcted area all the blood-vessels are thrombosed, and share in the general necrosis. Here and there, however, there are some less necrosed, and these are seen to be dilated and plugged with fibrinous thrombi. In the marginal zone bordering the necrotic tissue and in the hæmorrhagic strands passing to the surface the interlobular arteries and their branches to the glomeruli are dilated and occupied by thrombi. The thrombi consist for the most part of fibrin. Some of the vessels appear to be filled with dense fibrin; in others the fibrin appears as a filamentous meshwork lining the walls and surrounding apparently living red blood cells in the centre of the vessel. In some others, again, the central part of the vascular channel seems to be occupied by amorphous material in which the degenerate remains of a few red cells can just be made out, whereas at the periphery fibrin is deposited as a lining to the vessel wall. The larger vessels of the vascular arches are not affected. Many of the small straight vessels of the medulla are congested and a number of the medullary tubules appear to contain hyaline casts.

The kidneys had not previously been absolutely healthy organs, for there is some evidence of arterio-sclerotic changes. A number of the arteries show periarterial fibrosis and a few also show slight thickening of the internal coat. In places a few of the glomeruli are seen to be converted into dense fibrous tufts and at the surface a slight increase of the fibrous tissue has already been noted.

CASE 11. *Suppression of urine from chronic nephritis; fatal.*—Mrs. McD., 3-para, aged 34, seven months pregnant, admitted at 12.30 A.M. on July 6th, 1919, suffering from suppression of urine, which had lasted for 12 hours. Her family history was good, and she had never had any serious illness except at her previous confinements. At the first confinement (seventh month) she had had several fits, with swelling of the legs and face during the pregnancy and severe headache. The child had lived three weeks. Her next labour had been normal, but she had had one fit. During the present pregnancy she had apparently been well until 24 hours before admission, when her left leg began to swell and the urine was noticed to be scanty; none had been passed for 12 hours. There was slight œdema of the left leg. The lungs and heart were normal. The fundus was at the umbilicus. No urine was obtained.

At the time of admission the os was not dilated, but at 2 P.M. there was a sudden hæmorrhage and lateral placenta prævia was found to be present. The membranes were ruptured, version done, and a foot brought down. The delivery was left to nature and occurred some eight hours later. There was considerable hæmorrhage, checked by ergotin. Two pints of normal saline solution were given and hot packs applied. As there was still complete suppression of urine on the following day Mr. Pringle decapsulated both kidneys within 48 hours of the onset. Both kidneys were curiously mottled and granular in appearance when the capsules were stripped off. 8th: Next day the patient was given 10 grains of diuretin every four hours, but there was no urine secreted. 9th: One ounce of urine was obtained. It contained albumin, red blood corpuscles, and granular casts. 10th: Four ounces of urine obtained. The dressings, which were saturated with urine, were changed, and the drainage-tubes were cleaned and shortened. The patient vomited frequently coffee-ground-like material. Her pulse was very good, and she was quite conscious. 11th: Five ounces of urine were obtained by catheter; it still contained albumin and casts, hyaline and granular. The vomiting continued. Two pints of saline were given under the breasts. The pulse, which had been full and strong throughout, began to fail in the afternoon. Strychnine was given, but the weakening of the pulse continued, and the patient became comatose. She died just after midnight. Ten ounces of urine had been obtained from the bladder since the operation, and in addition the dressings had been saturated with urine.

She was admitted on the 6th at 12.30 A.M. after 12 hours of suppression and died on the 12th, just after midnight, so the suppression had lasted 6½ days. A general post-mortem examination was not allowed.

The result of the pathological examination (A. M. K.) was as follows:—

The kidneys are a little under normal in size and are firm and dense. The surfaces are roughly granular, being studded all over with small rounded elevations of a greyish-yellow colour. The depressions between these prominences are darker. The capsule was apparently somewhat thickened and, although for the most part it has been stripped off, in places it has apparently split leaving a layer adherent to the surface. On section the cortex is seen to be narrowed fairly regularly all round. It is for the most part opaque and greyish-yellow in colour, but mottled with small dark congested areas. The arteriæ rectæ seem congested. The renal arteries are thickened and there is some increase of the fat in the neighbourhood of the renal pelvis.

Microscopical examination showed a general increase of the interstitial connective tissue throughout the kidney and which in places is somewhat cellular and more abundant than in others. Many of the glomeruli show thickening around their capsules and others are completely fibrosed, particularly those near the surface, the tufts being completely converted into dense fibrous nodules. The tubules in the areas where the fibrosis is most marked are atrophied and collapsed and their cells more cubical. In other places many of the tubules are dilated, the epithelium appearing somewhat flattened and granular. The nuclei are for the most part well defined, but are sometimes rather indistinct, and occasionally have disappeared where the epithelium is particularly degenerate. The arteries are slightly thickened and show well-marked peri-arterial fibrosis. The microscopical appearances are typically those of a chronic interstitial nephritis.

Remarks.

When we look at these cases collectively we find this feature in common—that they all suffered from what is known as the toxæmia of pregnancy. The cause seems to lie in the action of a toxin, and if there is chronic interstitial nephritis present there is grave risk of suppression of urine. In the cases of cortical necrosis there is always marked toxæmia present. As to how the thrombosis is brought about I can hazard no opinion.

When suppression of urine is fairly established treatment by medicines, transfusions, &c., seems hopeless. Decapsulation of the kidneys in cortical necrosis has done no good, and one cannot see how it can be of any use. In a case of nephritis, as in Case 11, it might do some good. In that case there was some urine secreted, and the patient lived longer after the operation than any of the cases of necrosis operated upon, but the result was the same.

I am afraid that it is impossible to differentiate between cortical necrosis and chronic nephritis, and it is quite apparent that the two may coexist. A history of previous nephritis would argue against necrosis. The only hope is in prevention, by the careful early treatment of toxæmia of pregnancy.

Summary and Commentary (A. M. K.).

Of the 11 cases noted above, pathological reports on the condition of the kidneys are available in 8 instances. Two of these showed chronic interstitial nephritis only. In the one (Case 11) the condition was well marked—the surfaces of the kidneys being roughly granular, with narrowing of the cortex and thickening of the arteries, and general increase of the interstitial connective tissue throughout; in the other (Case 3) the changes were less

marked, but from the report of Dr. R. M. Buchanan, who made the investigation some 22 years ago, it would appear that the capsules were adherent, the tubules dilated, and their epithelium compressed. The remaining six cases were examples of symmetrical cortical necrosis of the kidneys. In three (Cases 7, 8, and 9) the condition was uncomplicated by any pre-existing disease in the kidneys, the organs showing no changes beyond those associated with the necrosis. In the remaining three, however, the kidneys, prior to the onset of the necrosis, had been the seat of chronic changes of varying degree. The first of these (Case 5), examined by Professor J. H. Teacher, showed that there had been a slight subacute interstitial nephritis pre-existing, the connective tissue in the kidneys being increased in amount and in places rather cellular, and the tubules irregularly dilated. In the second (Case 6), also investigated by Professor Teacher, the old-standing lesion was trifling, there being only very slight endarteritis of the smaller cortical arteries. In the third case (Case 10) the kidneys had been the seat of slight arterio-sclerotic changes. Periarterial fibrosis could be made out and occasionally very slight endarteritis; in places a few of the glomeruli were transformed into dense fibrous tufts, and at the surface little flat wedge-shaped fibrous areas could be made out in which the tubules were atrophied.

From the foregoing series of cases it would appear, therefore, that suppression of urine in pregnancy or the puerperium may be dependent upon chronic interstitial nephritis, or be the result of symmetrical cortical necrosis of the kidneys. Of course, in chronic interstitial nephritis suppression of urine may be met with apart altogether from pregnancy, but symmetrical cortical necrosis would appear to be peculiarly related to the pregnant state. The necrosis may affect kidneys that show no antecedent chronic disease; but old-standing interstitial nephritis or arterio-sclerosis may be present, and, while one is not justified in assuming that the symmetrical cortical necrosis is particularly liable to affect kidneys which are already the seat of chronic changes, it must be recognised that arterio-sclerosis may have some predisposing influence on the occurrence of thrombosis.

Of the six cases of cortical necrosis of the kidneys focal necrosis was found in other organs in five. In three focal necrosis was obvious in the liver, the fourth showed it in the suprarenals and intestines, and in the fifth lesions were found in the pons. No microscopical report on any of the organs other than the kidneys is available in the sixth case (Case 5 of series).

The occurrence of focal necrosis in various organs of the body is one of the features of the pathology of eclampsia, the liver being the organ in which the changes have been most frequently noticed. It would appear, therefore, to be justifiable from the pathological point of view to regard these cases of cortical necrosis as falling into this category. Clinically they were all regarded as being of this nature.

The distribution of the cortical necrosis is noteworthy, involving as it does the outer two-thirds of the cortex. This would appear to have some relation to the vascular supply, for the large vascular arches in the inner part of the cortex are unaffected, whereas the smaller cortical branches are thrombosed.

In the majority of the cases the necrosis is more or less complete, but in Case 9, where the suppression of urine had lasted only 1½–2 days, the renal lesions were early and give some indication as to how the condition begins. In this case the necrosis in the outer two-thirds of the cortex was of a patchy nature, and the patches were of varying size. Thrombosis of the cortical blood-vessels was not a striking feature. Capillaries in several of the necrotic areas were found thrombosed, but only rarely were any of the arterioles affected. This is rather a striking feature, and contrasts with the other cases of longer duration in which thrombosis was conspicuous, and extended into almost all the cortical vessels above the vascular arches. There is, therefore, some grounds for the view that the thrombosis begins peripherally and spreads inwards towards the proximal end of the interlobular arteries. Professor E. E. Glynn,[2] in 1915, describing the pathological findings in a case of cortical necrosis, drew special attention to the presence of blood platelets in the thrombi, particularly in the distal portions, and he considers that the immediate cause of the thrombosis is the deposition of platelets and fibrin in the distal end of the interlobular arteries, their afferent branches, and the glomerular capillaries. He points out that injury to the vascular endothelium is one of the commonest causes of thrombosis, such injury leading to the deposition of platelets and fibrin appearing later. Granted that damage to the vascular endothelium is the immediate cause of the thrombosis, the agency responsible for the damage remains to be determined.

In three of the cases of symmetrical necrosis included in the present series, a certain amount of arterio-sclerosis was present in the kidneys—in two it was very slight, in one it was moderately extensive. The possibility of such arterio-sclerosis predisposing to thrombosis must be admitted, but it is obviously not the prime factor, for in the other three cases no arterio-sclerosis was found. In every case the thrombosis is only found in the neighbourhood of the necrotic tissue, so it would appear that either the one is dependent on the other or both are due to a common factor. Degeneration and necrosis of the renal epithelium are met with in cases of acute nephritis due to causes other than pregnancy, but similar thrombosis is not found in them. It would not appear, therefore, that necrosis of the renal epithelium, per se, produces thrombosis. Further, in fatal cases of eclampsia an almost constant feature is focal necrosis in various organs of the body, but chiefly in the liver, and these are frequently associated with capillary thrombosis. The eclamptic toxin appears to be a very complex body made up of several constituents; hæmolytic (cytolytic), endotheliolytic, and thrombotic elements have all been suggested as component elements. It seems clear, then, how such a toxin could be responsible for the focal necrosis and thrombosis in various organs, and it is only rather surprising that symmetrical necrosis of the kidneys is not more frequently met with. There is the possibility that in the great majority of cases of eclampsia the toxin is modified or altered in some way, perhaps in the liver, before it is excreted by the kidneys, and that it is only in those cases where it passes to the kidneys unaltered or in such concentration as to cause the widespread cortical necrosis and thrombosis in these organs.

Treatment.

The question of treatment of cases of suppression of urine in pregnancy is a difficult one, and will remain so until the whole problem of the pathology of the toxæmia of pregnancy has been solved. We have seen that the suppression may be dependent, on the one hand, upon a chronic nephritis only, or, on the other, upon a symmetrical cortical necrosis involving kidneys which had been quite healthy or were already the seat of chronic changes.

In a recent review [3] on "Decapsulation and Nephrotomy for Nephritis" decapsulation and nephrotomy are advocated for those cases of suppression of urine in pregnancy or the puerperium which are due to symmetrical cortical necrosis. It is considered that these cases should be distinguished from eclampsia, and that it is the stillbirth which occasions an acute toxic exudation within the capsule of the kidney causing tension which may be relieved by bilateral nephrotomy and temporary drainage as soon as anuria sets in. The writer of the review does not think time should be spent in medical treatment. We are not inclined to agree with his views. Of the six cases of symmetrical necrosis herein recorded decapsulation was tried in three without effect. Further, the condition is not always associated with stillbirth; one of our cases was delivered of live twins. The writer of the review points out that the operation is useless and contra-indicated for adults suffering from chronic interstitial nephritis. In two of our cases of suppression

[2] Journ. of Path. and Bact., vol. xix., 1915.

[3] Medical Science: Abstracts and Reviews, vol. ii., No. 1, April, 1920.

chronic nephritis was the only condition found post mortem, and in three others of the series symmetrical cortical necrosis was superimposed upon chronic lesions. If the presence of chronic nephritis contra-indicates such operative interference, then the differential diagnosis of suppression due to chronic nephritis and that due to symmetrical necrosis might cause some difficulty. The reviewer urges operation as soon as anuria sets in, but he does not state how long we should wait before concluding that it existed. In Case 9 of our series the suppression of urine had only lasted 1½–2 days, yet the changes found post mortem were such as to be beyond hope of any good resulting from operative treatment at that stage.

We look upon the symmetrical necrosis of the kidneys as being dependent upon the toxæmia of pregnancy and one of the manifestations of eclampsia. The writer of the review, already quoted, urges bilateral decapsulation of the kidneys on the first onset of eclampsia as offering the best chance for both mother and child, and advises delivery by Cæsarean section if the eclampsia be well established. We doubt if many obstetricians will endorse these views. We think that successful treatment will depend upon the earlier recognition of the toxæmic state and the application of such remedies as will eliminate or counteract the toxin before it has caused necrosis of the tissues or vascular thrombosis.

HÆMORRHAGE FOLLOWING THE OPERATIVE TREATMENT OF INTERNAL HÆMORRHOIDS,

WITH PARTICULAR REFERENCE TO SEVERE SECONDARY HÆMORRHAGE.

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THIS paper is based on an analysis of 500 cases of internal hæmorrhoids operated on at St. Mark's Hospital in the course of the last 16 months. In the table which follows it will be seen that ligature has been performed in 470 cases, including 62 cases in which ligature was combined with treatment for a fissure or fistula. The clamp and cautery method accounted for 18, and Whitehead's operation for 12 cases.

Table of Cases.

Nature of operation and No. of cases.		Variety of hæmorrhage, No. of cases, and No. of days after operation.	
Ligature	408	Intermediate ...	2
		Secondary-severe	5 (7, 7, 7, 7, 8)
		Secondary-slight	6 (4, 5, 6, 7, 7, 8)
Clamp and cautery ...	18	Secondary-slight	1 (7)
Whitehead's operation	12	Intermediate ...	1
Hds. and fissure (lig. and incision)	36	Secondary-slight	1 (10)
Hds. and fistula (lig. and laid open)	26	Nil.	

Post-operative hæmorrhage may be either (1) intermediate—i.e., within 24 hours of the operation; or (2) secondary—i.e., later than 24 hours after operation.

Intermediate Hæmorrhage.

Of the 3 cases of intermediate hæmorrhage requiring treatment, 2 followed a ligature and 1 a Whitehead's operation. This variety of hæmorrhage is caused by the slipping of a ligature, or by persistent bleeding from a small vessel not ligated at the time of operation or in which the thrombus has become loosened as the result of coughing, vomiting, or straining at micturition. In each case there was considerable oozing during the night following operation, necessitating one or more changes of the outer dressing, requiring active treatment in the morning. Hypodermic injections of morphia were given with general treatment, and the bleeding was controlled efficiently in each case by plugging the rectum by the methods later to be described; a vulcanite tube was inserted in 2 cases, the third was plugged with a rubber tube and a wool "surround." The tubes were removed after 24 hours, and no further bleeding occurred. The routine injection of 5 oz. of sterile olive oil was given into the rectum on the second evening after operation, and castor oil 1 oz. was administered orally on the third morning.

The operative technique is the most important factor in the avoidance of intermediate hæmorrhage. In the ligature operation in particular, care should be taken to keep the scissors accurately in the submucous plane in order to avoid dividing vessels unnecessarily; the distal portions of the ligated piles may be left in situ, or, if part is cut away, an ample amount should be left to ensure that no slipping of the ligature can take place.

No example of intermediate hæmorrhage occurred among the 18 cases treated by the clamp and cautery method.

Secondary Hæmorrhage and Its Causation.

This is an uncommon complication which cannot be anticipated, and unless the possibility of its occurrence is kept in mind, a large concealed hæmorrhage may occur before the condition is recognised. In this series 5 cases of serious secondary hæmorrhage followed a ligature operation, 4 on the seventh and 1 on the eighth day after operation. In addition there were 8 other cases of slight secondary hæmorrhage after defæcation, of no special consequence and requiring very little treatment; 7 of these followed a ligature operation.

A secondary hæmorrhage is brought about by premature separation of the sloughing pile. After the ligature operation the ligatures separate normally between 8 and 12 days after operation. In this series the average date of the secondary hæmorrhage has been seven days after operation. The chief factors in the causation of the hæmorrhage are: (1) Infection, (2) trauma, (3) anæmia and general debility. To these may be added, rarely, (4) blood diseases such as hæmophilia.

1. *Infection.*—This is the most common general cause of secondary hæmorrhage. In the operative technique employed at this hospital every care is taken to render the operation as aseptic as possible. The patient is admitted two days beforehand and efficiently prepared; just before operation the rectum is thoroughly swabbed out with ether soap and lysol, and the piles are swabbed with biniodide in spirit. The bowels are opened on the third day after operation, by which time the raw surfaces should be well covered by granulation tissue. One case of secondary hæmorrhage had a post-operative pyrexia of 101° F., which fell by lysis to normal on the sixth day, and a secondary hæmorrhage occurred on the following day. A post-operative rise of temperature to 99° or 100° F. for a day or two is not unusual, but I do not believe that this pyrexia is necessarily a sign of infection. In none of the cases of secondary hæmorrhage was there evidence of any extraordinary infection, and the cases all healed well, with no ulceration, constriction, fistula, or other sequela. A combination of unusual activity of saprophytic bacteria with diminished resistance on the part of the patient would account for a too early separation of the pile. There might be also a local infective arteritis proximal to the ligature without any actual spreading infection. A slight trauma, such as by the passage even of a soft stool, would then be sufficient to start a hæmorrhage. No case of secondary hæmorrhage occurred among the 26 cases of hæmorrhoids and fistulæ operated on. There was one slight hæmorrhage on the tenth day among the 36 cases of hæmorrhoids and fissures.

2. *Trauma.*—The important exciting cause of secondary hæmorrhage is trauma, usually caused by defæcation. To avoid constipation after operation most cases are put on liquid paraffin with aperients p.r.n., but much difficulty is sometimes experienced in keeping the bowels open satisfactorily. In Case 1 constipation was undoubtedly the important factor in the causation of the hæmorrhage, and in the other cases, although the patients were not constipated, the hæmorrhage was usually first noticed at or shortly after defæcation. Traumatism may also occur from an accidental pull on the ligatures, the ends of which are left long, but I have met with no example of this.

3. *Anæmia and general debility.*—In one of these cases (Case 2) the patient had suffered from severe recurrent bleeding at stool for several months previous to operation, and was evidently in an advanced stage of secondary anæmia. At the operation three large, pale, and friable internal hæmorrhoids were ligatured; a severe secondary hæmorrhage occurred seven days later. In a debilitated individual an avascular pile tends to slough through more rapidly than is normal, there being diminished resistance to bacterial action. It is probably safer to treat such a case by the clamp and cautery method if otherwise suitable.

4. *Blood diseases.*—It is recognised that operations for hæmorrhoids are particularly dangerous in cases of hæmophilia, intractable bleeding taking place at operation and recurring afterwards. There was no suspicion of this disease in any of these cases.

Symptoms and Signs.

There were no premonitory symptoms in these five cases of severe secondary hæmorrhage. The relation of defæcation to the hæmorrhage varied, but usually the bleeding first occurred at or immediately following defæcation. The only local sign was usually a slight intermittent or continuous trickling of blood from the anus, giving absolutely no indication as to the size of the hæmorrhage concealed. In one case a constant tenesmus was complained of, the patient straining down and passing fluid and clotted blood at short intervals. Local pain was usually present, possibly caused by the tension of blood in the rectum, the sphincter being always tightly contracted.

Each case presented to a varying degree the general evidences of loss of blood.

Diagnosis.

If a patient passes a small amount of blood with a stool, he should be confined to bed until the next stool and watched. If there is a small, continuous oozing of blood from the rectum, or a slight recurring hæmorrhage at stool, or the least suspicion of any of the recognised symptoms of hæmorrhage, the insertion of a speculum will infallibly demonstrate whether or not there is bleeding into the rectum with retention.

A Kelly speculum is sterilised, and after lubrication with sterile vaseline is passed gently into the rectum; on withdrawal of the obturator a concealed secondary hæmorrhage, if present, is at once made apparent. A finger passed into the rectum gives no information of any value, and the passage of a small drainage-tube for diagnostic purposes is not to be recommended, since it is liable to be obstructed with blood-clot. The tubular speculum affords the most certain diagnosis.

Treatment.

Local treatment.—The patient lies in the left lateral position and a tubular speculum is then introduced; a varying amount of fluid and coagulated blood will be evacuated. The presence of the speculum may excite expulsive efforts on the part of the patient; in one of these cases the patient suddenly strained down and shot out a large amount of blood when the speculum was passed into the rectum. The lower rectum should be irrigated with one or two pints of normal saline or lysol solution at 110° F. A light is then directed into the speculum, and an attempt is made to localise the bleeding vessel. The sloughs resulting from the operation are usually still present, and, together with the ligatures and entangled blood clot, make identification of the vessel very difficult. The bleeding was definitely arterial in each of the cases of large hæmorrhage, but in only one instance was I able to find the bleeding point; this patient was anæsthetised and the vessel ligated. The remaining four cases were treated by plugging the rectum; this proved quite efficient and should, I think, be successful in all cases; it is easier and quicker than ligation of the vessel, which has to be done under general anæsthesia and is rarely practicable.

Plugging the rectum.—This may be carried out by means of a vulcanite or a rubber tube; an anæsthetic is not required. The vulcanite tube (Gowlland's tube) is strong and smooth, 1 in. in diameter and 4 in. long; the end which is passed into the rectum is rounded off, the other end is screwed into an oval vulcanite plate which is pierced at opposite ends to allow of the attachment of tapes. The examination being completed, the speculum is removed. The sterilised lubricated vulcanite tube is passed into the rectum, a little dry sterile wool is packed round it at the anal margin, and it is covered by a large pad of wool secured by a T-bandage. Tapes previously attached to the tube are tied to the bandage round the waist.

Plugging the rectum with a rubber tube is, I think, more efficient, safer, and causes less pain. The method was described by Mr. Lockhart-Mummery, and the plugging is carried out in the following manner:—A piece of stout ¾-in. rubber tubing 5 in. long is boiled and dried; strips of dry sterile wool are then wrapped round it towards one end, making an oval swelling about 1¼ in. in its greatest diameter. This is smeared thickly with sterilised vaseline, and the tube with its "surround" of wool is then passed into the rectum. In cases of difficulty I have found it a useful plan first to insert a large-bore tubular speculum, and then to pass in the rubber tube with the wool surround through the speculum. A large safety-pin is passed through the tube immediately outside the anus, and a gauze strip of the requisite length is wound round the tube, between the pin and the anus, in order to effect some pressure on the pile-bearing area. The large pad of wool and the T-bandage complete the operation. This pad is inspected at short intervals to see that no further hæmorrhage is occurring, and the pulse-rate is recorded frequently.

Local treatment on these lines should control any secondary hæmorrhage from the rectum, however severe. The great merit of the tubes is that any further hæmorrhage is at once revealed, and, if necessary, the plugging can be repeated. Two cases had to be re-plugged, the bleeding being reduced but not completely stopped.

General treatment is carried out on the usual lines.

After-treatment.

The tube is usually removed after 48 hours. An injection of 5 oz. of sterile olive oil into the rectum through the tube serves to facilitate its removal and also to minimise the risk of trauma at the next defæcation. Castor oil (1 oz.) is given by the mouth 6–12 hours later, and the bowels are subsequently kept well open by means of liquid paraffin and suitable aperients. The patients are kept in bed for a week after the hæmorrhage, with treatment for anæmia.

The Five Cases of Secondary Hæmorrhage.

CASE 1.—P. S., male, aged 37. Operation June 16th, 1919. Three hæmorrhoids ligatured; post-anæsthetic vomiting for two days. Constipated in spite of large doses of par. liq. A severe secondary hæmorrhage occurred on June 24th. Speculum inserted and large amount of blood evacuated; brisk arterial bleeding from the right side. The rectum was plugged temporarily, and the vessel then ligatured under anæsthesia and a small tube left in the rectum. Pulse 112. Marked secondary anæmia. Recovery uncomplicated.

CASE 2.—A. R. B., male, aged 29, very anæmic. Operation Oct. 22nd, 1919. Three large avascular internal hæmorrhoids ligatured. Slight post-operative pyrexia; not constipated. Large secondary hæmorrhage on Oct. 29th. No definite bleeding-point seen. Rectum plugged with rubber tube and wool surround; usual general treatment. Pulse 120. Tube removed on Oct. 31st, preceded by an olive oil injection. No further bleeding.

CASE 3.—N. T., male, 36 years. Operation Nov. 27th, 1919. Three hæmorrhoids ligatured. Brisk arterial hæmorrhage on Dec. 4th. Vulcanite tube tied in at 5 P.M. The bleeding did not stop completely, so a rubber tube with a wool surround was inserted at 12.30 A.M., Dec. 5th. Usual general treatment. Pulse 96. Anæmia marked. The tube removed second day. No further bleeding.

CASE 4.—A. R. S., male, aged 44. Operation Dec. 18th, 1919. Three prolapsed and thrombosed internal hæmorrhoids ligatured. Post-operative pyrexia to 101° F., which fell by lysis, and was normal on the sixth day. Severe hæmorrhage on Dec. 25th, but no definite bleeding point seen. Controlled by plugging. Pulse 100. Tube removed second day; no further hæmorrhage occurred. No evidence of local infection.

CASE 5.—B. C., female, aged 28. Three hæmorrhoids ligatured on Feb. 16th, 1920. Secondary hæmorrhage on Feb. 23rd after defæcation. Speculum inserted and bright blood seen escaping, but no definite vessel located. Rectum plugged and usual general treatment given. Pulse 120. Slight oozing continued; rectum re-plugged in evening. No further bleeding; marked secondary anæmia. Tube removed second day.

The cases of slight secondary hæmorrhage require no further note; the bleeding occurred after defæcation on the days indicated in the table. They were treated with hazeline irrigation through a speculum, followed by the insertion of a small drainage-tube for 24 hours, with a little dry wool packing. The patients were kept in bed for four or five days, and no further trouble was experienced.

Conclusions.

1. Severe secondary hæmorrhage following a ligature operation for internal hæmorrhoids is a possible complication, occurring in this series at the rate of just over 1 per cent. of cases—5 in 470. The rectum necessarily becomes a septic area when the bowels are opened three days after operation, and it is difficult to see how the risk of a secondary hæmorrhage from sepsis can be further eliminated.

2. The average date for the hæmorrhage is seven days after operation.

3. The hæmorrhage usually follows an action of the bowels, hence in the post-operative treatment the prevention of constipation is of the greatest importance in minimising the risk of trauma.

4. The bleeding tends to be concealed, and a suspected case of hæmorrhage should be investigated without delay with a tubular speculum.

5. Plugging the rectum with a vulcanite or rubber tube is the most generally efficient method of controlling the hæmorrhage, which is to be combined with suitable general treatment.

I have to thank the surgeons of this hospital for allowing me to record these cases.

THE COMPLEMENT-FIXATION TEST IN GONORRHŒA.

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THE tests upon which this paper is based were carried out in the Pathology Department, University College, Cork. The main objects of the investigation were the determination of the diagnostic value of the reaction and its reliability as a guide to the period of infectivity. If reliable, the test will have a wide application in the diagnosis of obscure gonorrhœal lesions, especially in the female, and, employed as a criterion of cure, should prove of the utmost value in diminishing the incidence of the disease.

Theoretical Considerations.

The test under consideration has as its underlying principle the detection of specific antibodies in the serum. It would seem therefore that a strongly positive reaction signifying an efficient response on the part of the healthy tissues is of favourable prognostic import. A weakly positive or a negative reaction would seem to indicate a failure of specific antigens in reaching the healthy tissues in sufficient amount, and to suggest the administration of a suitable vaccine in order to provide the necessary tissue stimulus.

Again, a negative result in a case which had previously reacted positively, proving the disappearance of the specific antibodies, would suggest the removal of the tissue stimulus, or in other words, the destruction of the organism. In this respect, however, one must consider the possibility of the gonococcus lying dormant in some situation so walled off from the general circulation that antigenic substances no longer reach the blood-stream and healthy tissues.

To summarise, the points requiring elucidation would appear to be :—

1. Whether in all cases of gonococcal inflammation antibodies can be detected in the serum, or whether such inflammation may exist without the necessary antigenic stimulus reaching the healthy tissues. 2. Whether, when once the tissues are incited to form antibodies, such formation continues until the organisms are destroyed, or whether, the acuteness of the inflammation having subsided, the latter may lie dormant but potentially virulent without exerting any further stimulating action on the body cells. 3. A point of subsidiary importance is the approximate determination of the length of time during which antibodies persist in the serum after destruction of the organism.

The conclusions reached with regard to these points will be discussed.

Technique.

The technique employed was practically identical with that described by Captain D. Thomson, R.A.M.C.[1]

Antigen.—During the earlier stages of this investigation Parke, Davis, and Co.'s compound gonococcal antigen was exclusively employed. Later, through Captain Thomson's kindness in providing me with a supply of antigen prepared according to his own method, it was possible to compare the relative merits of the two. It was found by preliminary tests that either antigen in a dilution of 1 in 10 gave satisfactory results, and they were employed in this concentration throughout the work. The conclusions reached as a result of the comparison of the two antigens will be recorded.

Complement.—Guinea-pigs' serum which had been in contact with the clot for three to five hours was employed. The maximum complementary action seems to be attained about this time. The minimum hæmolytic dose was determined in the presence of the antigen. Thus a series of tubes was laid out, to each was added 1 volume (0·25 c.cm.) of a 1 in 10 dilution of the antigen, 1 volume of varying dilutions of the guinea-pigs' serum, from 1 in 10 to 1 in 100, and 1 volume of normal saline solution (to bring the total volume of fluid up to that present in the actual test). The tubes were then placed in the water-bath at 37° C. for one hour, and in the ice-chest for one hour. One volume of sensitised red blood corpuscles was then added, the tubes replaced in the water-bath, and the results read off in half an hour. The highest dilution of the serum which had caused complete hæmolysis was taken as the minimum hæmolytic dose.

[1] Medical Research Committee, Special Report Series, No. 19.

In all complement-fixation reactions it is advisable that the complement should be thus titrated in the presence of the antigen. It seems clear that the number of M.H.D.'s of complement absorbed by a given antigen from different sera shows variations. In the majority of cases the antigen in a suitable dilution absorbs between 1 and 1½ M.H.D., but occasionally the same concentration of the antigen will be found to absorb 2½ or even 3 M.H.D. from a given serum. This can only be due to some variation in the complement which renders it more easily absorbed or neutralised. A peculiar fact noted in this connexion is that the presence of normal human serum in the mixture containing antigen and complement diminishes the amount of the latter absorbed. Thus in reading a test it will occasionally be noted that the tubes containing the normal control serum show complete hæmolysis with 3 M.H.D. of the complement, whereas the antigen control, containing the same amount of complement but without serum, shows complete inhibition. The action of normal decomplemented serum in preventing the absorption of complement by the antigen is not easily explained.

Red blood cells.—A 6 per cent. suspension of washed sheep's corpuscles in normal saline was employed.

Hæmolytic serum.—This was obtained from Messrs. Burroughs, Wellcome, and Co., and proved very satisfactory. The usual titre was 1 in 3000 and the corpuscles were sensitised with 5 M.H.D. Thus a 1 in 300 dilution of the serum was prepared and equal parts of this and the suspension of red corpuscles were mixed and allowed to stand at room temperature for 15 to 30 minutes before use.

Patients' serum.—This was heated to 60° C. for ten minutes and then diluted 1 in 5 with normal saline.

The Test.

Four tubes were laid out for each serum and four for the controls. In the serum tubes A, B, C, D was placed 1 volume of the diluted decomplement patients' serum. To tubes A, B, and C was added 1 volume of the antigen dilution, and to tube D, which acted as the serum control, 1 volume of saline. To tubes A and D was then added 1 volume of guinea-pig's serum, containing 2½ M.H.D. of complement, to tube B, 1 volume containing 3 M.H.D., and to tube C, 1 volume containing 3½ M.H.D. The control tubes were arranged as follows :—

(1) 1 volume of normal decomplemented serum (1/5) plus 1 volume of antigen plus 2½ M.H.D. of complement	Negative control.
(2) 1 volume of a positive serum plus 1 volume of antigen plus 2½ M.H.D. of complement	Positive control.
(3) 1 volume of saline plus 1 volume of antigen plus 2½ M.H.D.	Antigen control.
(4) 3 volumes of saline	Red cell control.

The whole series was then placed in the ice-chest overnight about 16 hours. On the following morning to each tube was added 1 volume of sensitised red cells; the tubes were then replaced in the water-bath and the results read as soon as the serum controls and the antigen control showed complete hæmolysis.

The rule observed in reading the tests was that a serum showing complete inhibition of hæmolysis in the first two tubes and partial or complete inhibition in the third was marked Strongly Positive (+ + +). A serum showing complete inhibition in the first tube and partial or complete inhibition in the second was marked down Positive (+ + −). A serum showing complete inhibition in the first tube and complete hæmolysis in the others was marked Weakly Positive (+ − −). Sera which showed partial hæmolysis in the first tube and complete hæmolysis in the others was marked Doubtful (± − −), and, if possible, re-examination was carried out after an interval.

Number and Types of Cases Examined.

The total number of sera examined was 200, comprising 110 actual cases of disease and 90 controls. All collected from male patients. In the majority of the cases the subsequent history was available, and the extent to which this confirmed the results of the tests could be determined. A large number of the sera were examined simultaneously with Thomson's and Parke, Davis, and Co.'s antigen, so that the actual number of tests carried out was 298. The cases were grouped as follows :—

Group 1.—*Urethral discharge containing gonococci.*	
(*a*) Acute purulent discharge	60 cases.
(*b*) Chronic gleety discharge	20 ,,
(*c*) Cases with discharge and systemic complications ...	4 ,,
Group 2.—*Urethral discharge without gonococci.*	
(*a*) Gleet with a definite history of previous acute discharge containing gonococci...	10 ,,
(*b*) Similar cases with systemic complications	2 ,,
(*c*) Cases of doubtful nature	2 ,,
Group 3.—Apparently cured cases which had received treatment with ordinary autogenous vaccines ...	5 ,,
Group 4.—Apparently cured cases which had not received vaccine treatment	7 ,,
Group 5.—Controls, comprising cases of syphilis, non-venereal diseases, and normal individuals	90 ,,

Results.

GROUP 1 (*a*).—*Acute Purulent Discharge Containing Gonococci.*

Date of collection of serum.	Total tested.	Pos.	Neg.	Doubtful
Before 12th day of discharge	9	2	6	1
Between 12th and 24th day	21	17	3	1
,, 24th ,, 50th ,, ...	30	27	2	1

In 51 cases in which the serum was collected after the 12th day of the discharge 88 per cent. of positive results were obtained.

GROUP 1 (*b*).—*Gleety Discharge Containing Gonococci.*

Date of collection of serum.	Total tested.	Pos.	Neg.	Doubtful
Between 4th and 5th week	3	2	—	1
,, 5th and 10th week	5	5	—	—
After 10th week	12	11	1	—

In 20 cases in which the serum was collected after the 4th week 95 per cent. of positive results were obtained.

GROUP 1 (*c*).—*Cases with Discharge and Systemic Complication.*

Date of collection of serum.	Total tested.	Pos.	Neg.	Complication.
5th week	1	1	—	Epididymitis.
7th ,, ...	1	1	—	,,
3rd month	1	1	—	,,
5th ,, ...	1	1	—	Arthritis.

In 4 cases with systemic complications 100 per cent. of positive results were obtained.

GROUP 2 (*a*).—*Gleety Discharge. No Gonococci. Gonococci Previously Detected.*

Date of collection of serum.	Total tested.	Pos.	Neg.	Doubtful
8th week	3	2	—	1
10th to 13th week	5	4	—	1
4th month	1	1	—	—
5th month	1	—	1	—

In 10 cases in which the serum was collected between 2nd and 5th month, 7 positive, 2 doubtful, and 1 negative result were obtained.

GROUP 2 (*b*).—*Cases Similar to Previous Group but Complicated by Arthritis.*

Date of collection of serum.	Total tested.	Pos.	Neg.	Complications
8th month	1	1	—	Arthritis.
15th week	1	1	—	,,

In two cases with arthritis and a history of gonorrhœa positive results were obtained.

GROUP 2 (*c*).—*Cases of Doubtful Nature.*

Date of collection of serum.	Total tested.	Pos.	Neg.	Remarks.
11th day	1	—	1	Mucoid discharge, denies possibility of gonorrhœa.
14th ,,	1	—	1	Purulent discharge, *B. coli* and Staph.

In two cases in which the history appeared to exclude gonorrhœa negative results were obtained.

GROUP 3.—*Apparently Cured Cases which had been Treated with Autogenous Vaccines.*

Date of collection of serum.	Total tested.	Pos.	Neg.	Doubtful
1 month after treatment had ceased	1	1	—	—
10 weeks ,, ,,	2	1	—	1
3 months ,, ,,	1	—	1	—
18 weeks ,, ,,	1	—	1	—

Three cases tested within three months of the date of last injection gave two positive and one doubtful result. Two cases tested after an interval of three months gave negative results.

GROUP 4.—*Apparently Cured Cases which had not Received Vaccine Treatment.*

Date of collection of serum.	Total tested.	Pos.	Neg.	Doubtful
Between 1 and 2 months after discharge had ceased	2	2	—	—
Between 2 and 3 months	2	1	1	—
Between 3 and 4 months	3	—	3	—

Two cases tested within two months after all symptoms had disappeared gave positive results. Five cases tested after the second month gave four negative results.

GROUP 5.—*Controls.*

Nature of case.	No.	Pos.	Neg.	Doubtful
Syphilis (Wass. pos.)	20	3	17	—
Cured syphilis (Wass. neg.)	39	1	38	—
Suspected enteric	10	—	10	—
Malaria	4	—	4	—
B. coli septicæmia	1	—	1	—
Normal individuals	16	—	15	1

Four positive results were obtained amongst 90 controls. Of these 4 cases one admitted having gonorrhœa eight years previously, but denied any recent infection. The other 3 denied ever having had gonorrhœa.

Comparative Tests with the Two Antigens.

(*a*) To determine relative degree of specificity.

Number of sera tested with both	98
Number positive with both	34
Negative with both	60
Positive with T., negative with P.D....	3
Positive with P.D., negative with T....	1

(*b*) To determine anticomplementary action.

To determine the anticomplementary action of the two antigens the M.H.D. of a guinea-pig's serum was estimated. Thus, a series of tubes was laid out; to each was added 1 volume of varying dilutions of the serum, 2 volumes of normal saline, and 1 volume of sensitised red cells. The tubes were then placed in the water-bath at 37° C. and the result read in half an hour. The highest dilution showing complete hæmolysis was taken as the M.H.D.

Two further rows of tubes were then laid out. To one row was added 1 volume of Thomson's antigen, and to the other 1 volume of Parke, Davis, and Co.'s antigen. One volume of saline was then added to each tube, and, starting at the left-hand tube in each row, 1 volume of varying dilutions of the serum. The tubes were then placed in the water-bath for one hour, and in the ice-chest for one hour. One volume of sensitised red blood cells was then added to each tube and the series replaced in the water-bath.

The result was read in half an hour, and by contrasting the M.H.D. with that determined by previous estimation the number of doses absorbed by the antigens could be determined. As a result of 15 such tests it was found that Thomson's antigen in a dilution of 1 in 10 never absorbed more than one M.H.D. On the other hand, Parke, Davis, and Co.'s antigen never absorbed less than one and a-half, and occasionally absorbed two M.H.D.

Thomson's antigen invariably proved less anti-complementary than P., D., and Co.'s. It would also appear to be slightly more sensitive, though here the difference is not very marked.

Review of Results.

As in all complement-fixation reactions the reliability of the test must depend to a great extent upon the sensitiveness of the antigen. Both antigens employed in this investigation gave satisfactory results, but more accurate information as to the serological strains of the gonococcus is desirable so that a definitely polyvalent antigen may be prepared. A negative result in the early stages of the attack is of no significance. A considerable proportion of cases during the first fortnight gave such result. The greater the duration of the discharge the greater the probability of a positive result. After the third week the great majority of cases reacted positively. The occurrence of systemic complications, such as epididymitis or arthritis, was invariably associated with a positive reaction. This is to be expected, as such complications indicate the dissemination of the organism and presumably a specific response on the part of the infected tissues.

Cases in which gonococci are found or can be induced to appear in the discharge offer no difficulty in diagnosis, and of course as long as the organism is present the patient is warned that he is infective. In many cases, however, as soon as the acuteness of the attack has subsided the organisms disappear, though a more or less scanty mucoid discharge persists. It is cases of this type which prove a serious problem for the practitioner, as he is frequently called upon to decide whether the patient is non-infective and at liberty to marry. A decision based upon negative microscopical examinations is fraught with danger, and it would seem that the complement-fixation test is of very real value in such cases. A positive result indicates either that the patient still harbours the gonococcus or that the latter has been so recently destroyed that antibodies still persist in his serum. In the latter case the positive result will disappear within a few months. The indication in such a case is to warn the patient that he is still infective, to continue local treatment, and to re-examine the serum after an interval of three months.

A negative result, especially if the serum has previously given a positive reaction, is very strong presumptive evidence of the destruction of the organism. It is, however, obvious that a much more extended investigation is necessary before the value of the test in this direction can be definitely established. Antibodies seem to disappear somewhat rapidly after the elimination of the organism. Positive results were obtained up to the third month after disappearance of all symptoms. After the third month all cases treated gave negative results.

The administration of an ordinary autogenous vaccine does not appear to prolong the positive stage to any great extent. A negative result is therefore not to be expected until three months after disappearance of symptoms and cessation of treatment, but a change from positive to negative about this time indicates complete cure and non-infectivity.

Four positive results were obtained amongst 90 controls. These positive cases were either suffering from or had suffered from syphilis. One admitted an attack of gonorrhœa eight years previously. One doubtful result was obtained in a healthy individual who had no history of gonorrhœa. It is noteworthy that the only controls giving positive results were those who admittedly had run the risk of contracting gonorrhœa, though denying any recent infection.

Conclusions.

1. The complement-fixation reaction will prove of real value both in the diagnosis of gonorrhœal infections and in the determination of the period of infectivity.

2. It is probable that with more accurate information as to the serological types of the gonococcus a more sensitive antigen will be available and still more specific results obtained.

3. Negative results are common during the first 10 or 12 days of the discharge. After this period the great majority of cases react positively. Positive results may, however, be obtained as early as the fourth day.

4. A certain number of mild cases in which the infection appeared to be limited to the anterior urethra reacted negatively through the attack.

5. The more extensive the inflammation the greater the probability of a positive result. Cases showing systemic complications invariably give such a result.

6. The complement-fixing antibody persists in the serum for about three months after destruction of the organism, during which period the reaction remains positive.

7. The administration of an autogenous gonococcal vaccine during the course of treatment does not lead to a greater persistence of antibodies, the serum becoming negative in about the same period after the final injection.

8. The criterion of cure and non-infectivity is therefore a change in the reaction from positive to negative three months after disappearance of all symptoms and cessation of all treatment.

REMOVAL OF METALLIC FOREIGN BODIES

BY SURGICAL OPERATIONS UNDER DIRECT X RAY CONTROL.[1]

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As a result of five years' experience as radiologist at the 2nd Eastern General Military Hospital, where I assisted at a large number of operations carried out under direct X ray control, I wish to appeal for the more frequent use of this method. The removal of foreign bodies is rendered easy and sure, the average time of operation is appreciably reduced, and the after-results are excellent. X ray apparatus should, however, be simple; both surgeon and anæsthetist object strongly if their work is impeded by a cumbrous or complicated X ray plant, and would prefer an X ray operating table as little different as possible from the ordinary operation table, leaving a perfectly clear field for the operation. Moreover, the day when an operating surgeon took but a perfunctory interest in the methods by which a radiologist supplies him with certain X ray data is past or is rapidly passing. The operator now often consults with the radiologist beforehand in the X ray room, using the ordinary apparatus, on the different indications of the position of a metallic fragment, and as to the steps of a projected operation. This consultation has developed into quite a rehearsal of the operation itself; therefore, to introduce a new complication in the shape of different X ray apparatus must be a mistake. For the control operations the best X ray plant is that ordinarily used, except in quite exceptional cases. However, while I maintain the superiority of the simple type of equipment, it must be an *efficient* type; it must be capable of producing perfect skiagraphs, able to show good stereoscopic views, and equal to very rapid localisation work. Many civil hospital equipments are by no means up to even this moderate standard.

Cases which have been operated on, perhaps several times over, without successful removal show such severe damage in the form of excessive scar tissue, and disability resulting from unsuccessful search, as to convince me that the common X ray help given the surgeon, by X ray plates and surface markings, is often insufficient, and that a preliminary consultation with the radiologist in the X ray room would have saved these patients much trouble. Some have been operated on by routes that surely no surgeon would have adopted had he possessed a clear and correct idea of the foreign body's exact position. Of course, it may be argued that in some cases the position of the fragment might have changed or that the position of the patient might have been different when X rayed to that when under anæsthesia at the operation. Both these contentions, to my mind, would merely be strong arguments in favour of preliminary combined observation by surgeon and radiologist.

The Essential Equipment for Direct-control Operations.

The essentials of a suitable equipment are, in my opinion: (1) Freedom from the possibility of "shocks" to patient or anyone near; (2) X ray protection for all, as thorough as can be, added to simplicity of apparatus; and (3) rapidity and ease of manipulation of apparatus. The main points of distinction in my equipment are: (1) A simple five-ply wood-topped X ray table without castors, light, and easily moved into any position, having no rails or tube-box, in fact, nothing whatever attached to it; (2) a light oak tube-stand on very easy castors; its tube-box can be moved about under the table by a handle held by the radiologist, who stands at the *same* side of the table as the surgeon, while the tube-stand itself remains on the opposite side; and (3) satisfactory X ray protection, no danger of "shocks," no liability of damage to machinery or individuals when working in the dark. It will be seen that the factors (1) and (2) give an absolutely clear field for operating.

[1] Abridged version of a paper read before the Brighton and Sussex Medico-Chirurgical Society on April 1st, 1920.

Obviously, an X ray room should be large (say, with a superficies of 500 sq. ft. and height of 12 ft.), with large windows, allowing plenty of daylight, and "through" ventilation after operations; steam radiators and electric stoves maintain a proper temperature. Walls and ceiling distempered a dull dark red allow light rays of a complementary colour to that of the fluorescent screen alone to affect the retinæ of operator and radiologist; the screen-observers can then quickly pick up the "screen-picture" when lights are turned out. Artificial light is used almost solely, but anæsthetists require that the room can be flooded with daylight and filled with fresh air at a moment's notice if necessary.

In "direct control" work the daylight and artificial lighting of the X ray room are supremely important. Blinds should fall to let daylight in and rise to shut it out. Window space must allow it to be filled with daylight when blinds are down, and blinds must be so opaque and well-fitting as to maintain absolute darkness when they are up. The darkness must be so complete that after a five-minute interval one cannot see a glimmer of light entering anywhere, nor any of the objects in the room. I prefer walls and ceiling dark red rather than black, as daylight illumination is better, and it suffices if no colour rays similar to fluorescence rays reach the retina and tire it for the screen.

For artificial lighting one powerful electric light should hang over the table for the surgeon, its exact position to be indicated by him; it should be shaded, so that no *direct* white light is on his eyes, which receive only reflected light from the patient's body and the X ray table. A weaker light beside it, also shaded, is for substitution when strong light is not needed; another weak light hangs over the anæsthetist; the other room lights are also shaded to protect the eyes of the surgeon and radiologist.

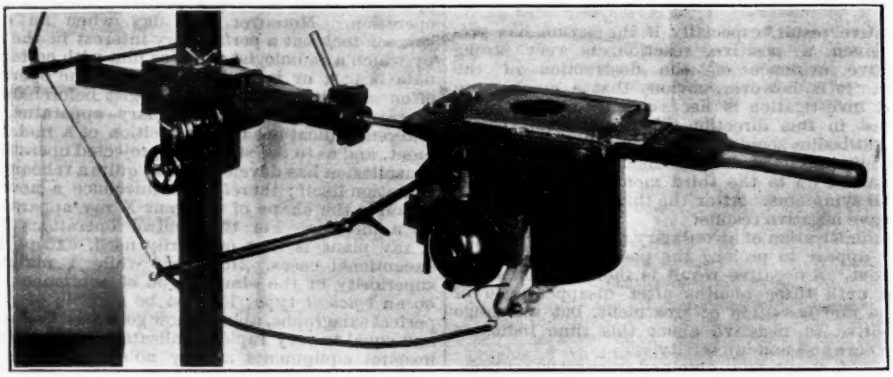
Good illumination of the operation field, if the surgeon's and radiologist's heads remain in darkness, or at least in reflected light only, does not prevent both seeing quite well all details on the screen directly lights are off and X rays started. Red-glass goggles for the surgeon have been advised, but they are not comfortable, and, in my opinion, may cause failure in asepsis.

The wooden X ray table, which must be strong, light, and steady, can be put in any position desired. The tube-stand, of oak, with heavy iron foot, on easy castors, is supplied with X ray proof box and three diaphragms. We were able to increase X ray protection by doubling the tube-box's lead-rubber lining and hanging on to the box a lead-rubber apron. A large wooden handle, hinged to fall down and giving a firm grasp, fixed to the box opposite its attached side, made the stand manipulable from the opposite side of the table. The changing of diaphragms, as supplied, occupied too much time for us, so we retained the 3-inch one for regular use and added other circular lead ones, with bevelled edges fitting in the 3-inch aperture and apertures of their own down to ½-inch; they were dropped into position or removed in a moment without danger of shifting the position of the tube-box.

The Separate Movable Tube-stand.

The separate light movable tube-stand (see figure) and light X ray table have many advantages over a heavy table with tube-box attached to it, for, besides being suitable for overhead work and emergency ward work, both table and tube-box are easily portable. Moreover, the X ray tube can be placed anywhere under the table (except on a very small area near each of two of the table legs), and, if necessary (for example, with an arm on a splint at right angles to the body), the screen examination can be carried out even beyond the limits of the table itself. Now, with a tube-box fixed on rails under a table, the combined weight is too great to move; no work outside the table is possible, while the workable area of a table is a much restricted one, and the rails and the box are often in the surgeon's way. A tube-stand need only be brought to the table when wanted, and, when unwanted, can be shifted into safety at once.

The light tube-stand has a very useful property due to its easy movement. It is difficult, sometimes, to make out a foreign body clearly, if it be deep-seated and its shadow involved in the shadow of large bone masses, or should the body be of thin metallic casing; but, if a series of very short and rapid side-to-side movements are made with the handle, then (for the reason that the parallactic movements of shadows of different structures under fluorescent-screen examination vary in amplitude in accordance with these structures' different depths) the foreign body will stand out with a distinctness much greater than if the tube be at rest.



Lateral view of tube-holder. ("Lead-rubber" apron removed.

The light tube-stand was discovered to be more rigid and free from "vibration trouble" than our heavy iron one; but "vibration trouble" is, in my experience, usually due to the shakiness of a plank flooring. A solid parquet floor gives none; a parquet floor, correct methods of connexion of tube-box and coil, and all possible accidental earths far from the table together make shocks also impossible. For ease in tube-changing, tube-testing, centring, working with an oblique ray the separate tube-stand is incomparable.

Should the X ray evidence of his preliminary examination convince the radiologist of the necessity of a "direct control" operation, he must give his surgeon a demonstration in the X ray room. This demonstration should include exact localisation of the metal fragment in reference to skin surface and to structures near; a stereoscopic view and the section illustrations in Symington's Atlas will also help. After this the surgeon ought to have as clear a mental picture as his colleague of the foreign body's position; he can then exactly mentally visualise the sequence of his operative events and, by arranging all details in advance, save time at the actual operation.

The operative steps must, of course, vary according to the particular case, but usually bull-dog forceps mark the vertical line and horizontal plane of the metal body; the surgeon's skin-incision is at his own selected spot. The surgeon's educated sensitive finger, superior to any mechanical device, pressing the lump he feels, disturbs the fragment's shadow on the screen, and when the point of a pair of forceps are demonstrated by the method of parallax to be in contact with the foreign body, its capsule is cut into and it is removed. In the method of parallax shadows of fragment and forceps-point are made to coincide in the centre of the circle of light, and the tube-box handle is then swung to the right; if the shadows separate the left one is deeper, if they do not the two objects are touching.

Two points of value in direct control work are: (1) Easy removal of several fragments through one incision; and (2) the certainty a final inspection gives that all metal has been removed.

Certain Objections.

The objections raised are various: surgeons start off by claiming inability to see anything on the screen, but it is found that practically everyone can with ten minutes'

practice see all the details of the fluorescent-screen picture. The presbyopic men must use their glasses for near vision. Secondly, it is contended that operations with the screen are dangerous. The obvious answer is that if any X ray room is dangerous, then the radiologist is very blameworthy in not having tested its safety and remedied it, while he is the person who is by far the most likely to suffer. A third objection is that asepsis cannot be maintained. It certainly can be. The direct control cases did better than the ordinary operating theatre ones in our experience. Besides, the X ray room, with nitrogen peroxides from electric discharges always in evidence, is a spot not favourable to pathogenic germ-growth. The final argument that there is no real necessity for direct control operations is quite untenable. Five years' military hospital experience of much-operated-on patients still carrying their shell fragments unfortunately proved their necessity.

Summary.

(1) The removal of foreign bodies by preliminary mutual consultation, followed by an operation under direct X ray control has been, and will still be in the future, a necessity in certain cases. (2) A direct X ray control operation can be carried out successfully with ordinary equipment. (3) The after-results of such an operation are found to be satisfactory. (4) The practice of direct X ray control operations for the removal of metallic foreign bodies is one to be recommended in general, and especially will be required so long as cases remain who present disability due to their continued presence.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

INFECTION WITH THE ORGANISMS OF VINCENT'S ANGINA FOLLOWING MAN-BITE.

By P. H. HENNESSY, M.B., C.M. MADRAS,
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AND
WILLIAM FLETCHER,
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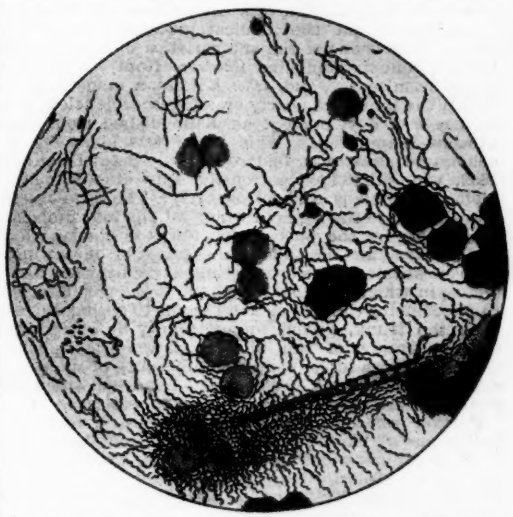
MANY years ago Babes, Plaut, Vincent, and others described a disease which usually begins as an acute stomatitis or tonsillitis, and may lead to the formation of a membrane resembling diphtheria. In the lesions they found spindle-shaped or fusiform bacilli associated with spirochætes. This disease is now known as Vincent's angina. Taylor and McKinstry,[1] who investigated its occurrence amongst soldiers, found that the characteristic lesions were always preceded by a localised, peridental, or marginal gingivitis. More recently Semple and others,[2] as the result of the examination of a large number of persons, concluded that fusiform bacilli and spirochætes are normal inhabitants of the healthy buccal cavity.

The occurrence of these organisms is not limited to the mouth and throat. Vincent found fusiform bacilli, together with spirochætes, in hospital gangrene, and in 1896, at the Académie de Médecine, he stated that they were the cause of tropical phagedæna. They have been found in noma and in erosive balanitis and vulvitis. Dick [3] has reported the presence of fusiform bacilli in three cases of meningitis in which the infection probably arose from the middle ear. Heyde,[6] in an examination of 102 cases of appendicitis, found fusiform bacilli in 8. Luger [7] has found spirochætes and fusiform bacilli in the stools. Peters [4] found them in a case of lung abscess and in another of fœtid bronchitis. Recently Blanchard [8] described a number of cases of phagedæna complicating vaccination pustules, which was due to spirochætes and fusiform bacilli.

The infection of wounds caused by the teeth has been reported by Peters.[4] In one instance a labourer injured his fingers by striking a man in the mouth. The injury was followed by intense swelling, œdema, and a foul discharge in which fusiform bacilli were discovered in association with streptococci, but without spirochætes. The same author describes the case of a bar-tender who hit a man in the mouth and injured his own hand. Despite free incisions and soaking in antiseptic lotions there was deep destruction of tissue and the hand did not heal for 54 days. In this instance great numbers of spirochætes were associated with the fusiform bacilli. Peters also mentions the case of a 7-year-old child who suffered from partial gangrene of one of her index fingers as the result of infection with spirochætes and fusiform bacilli attributed to the child's habit of biting her nails with her carious teeth.

Details of Case.

Our patient, C. P., a Tamil, was in charge of a small plantation where, one day, he caught a Malay stealing some of the rubber crop. The Malay fought savagely, bit the Tamil severely in the forearm, and then seized his left thumb between his teeth and bit it with such force that the nail was torn off and the terminal phalanx was fractured. When the patient was admitted to hospital in Kuala Lumpur a fortnight after the fight, the whole thumb was



Pus film from the patient's thumb. Stained by Fontana's method. There were very few fusiform bacilli in this film.

swollen and indurated; where the nail should have been there was only a soft mass of granulation tissue with sinuses leading down to the fractured phalanx, and at the base of the thumb there was an abscess which involved the metacarpo-phalangeal joint. The patient's temperature was slightly raised, but it fell to normal when the abscess was opened.

The pus from the sinuses contained fusiform bacilli and enormous numbers of spirochætes in writhing, tangled masses. These spirochætes were of several types and sizes. At one end of the scale there were large, actively motile organisms of the *refringens* type, which probably corresponded with Semple's[2] *Spironema buccale*, and at the other end there were very minute active spirochætes, smaller than *S. pallidum*, but with the same regular coils. Between these extremes there were two other forms which were probably the same as those described by Semple under the names of *S. medium* and *S. dentium*.

Tubes of serum agar were inoculated by introducing plugs of cotton-wool, which had been soaked in the discharge, into the bottom of the medium (as recommended by Semple), and a growth of spirochætes was obtained in mixed culture. Fusiform bacilli were also grown from the discharge by the method of Krumwiede and Pratt.[5]

Inoculations with the discharge from the thumb were made subcutaneously and into the testes of a rabbit, but it remained healthy. The experience of others has been the same; Blanchard,[9] for instance, found that the organisms of Vincent's angina do not multiply when they are inoculated under the healthy skin but only after it has been injured, as, for example, by an escharotic, such as caustic potash.

Vincent's angina does not cause a positive Wassermann reaction. In our case the patient's serum gave a slight positive reaction, but this was probably due to syphilis, for he admitted that he had suffered from a chancre ten years before.

Louis Rousseau [10] states that tropical phagedænism due to spirochætes and fusiform bacilli can be cured in about a week by three injections of 0·3 g. of novarsenobillon given on the first, fourth, and seventh

days. In our patient the thumb-joints were disorganised, the phalanges and the distal end of the metacarpal bone were necrotic; the disease had gone too far, and the pain was so severe that amputation was imperative. The patient was given two injections of 0·6 g., and after the operation he made an excellent recovery.

The main feature of this case and of that reported by Peters, is the widespread destruction of tissue (which in our patient involved the bones), resulting from an infection with spirochætes and fusiform bacilli.

References.—1. Jour. R.A.M.C., 1918, p. 512. 2. Ibid., October, 1919, 3. Jour. Inf. Dis., 1913, xii., p. 190. 4. Ibid., 1911, ix., p. 455. 5. Ibid., 1913, xii., p. 199. 6. Ztschr. f. klin. Chir., 1911, lxxvi., p. 1. 7. See Med. Science, March, 1920, p. 589. 8. Bull. Soc. Path. Exotique, 1919, p. 493. 9. Ibid., 1914, p. 96. 10. Ibid., 1919, p. 495.

A CASE OF PHOCOMELUS.

BY CAWAS HOMI, M.B., B.S. BOMBAY, M.R.C.S., ENG., L.R.C.P. LOND.

THIS type of monstrosity in mankind being comparatively rare, I think this case will be of interest to teratologists and the medical profession in general. Phocomelus is one of the sub-varieties of the monsters of the genus ectromelus (ἔκτρωμα, from ἐκτιτρώσκω, to abort or miscarry, and μέλος, a limb), a monstrosity in which the limbs are nearly or altogether deficient from an arrest of development as distinguished from spontaneous amputation. This name was given by the celebrated anatomist, Isidore Geoffroy Saint Hilaire, in 1832, who subdivided ectromelus into amelus, phocomelus, hemimelus, and ectrodactyly. The term amelus is restricted to the cases in which all the four limbs are absent, whilst the phocomelus fœtus is one in which the proximal and not the distal segment of one or more limbs is aborted, thus contrasting markedly with hemimelus, in which the distal segment is the part affected. In phocomelus the foot or hand seems to spring directly from the trunk, giving the extremity or extremities the appearance of the flippers of the seal (phoca). Ectrodactyly, a lesser degree of deformity of the genus ectromelus, shows a rudimentary hand in which the phalanges are represented by small tubercles.

Further reference to these varieties is found in Ballantyne's "Ante-Natal Pathology and Hygiene," with good illustrations and explanations. Cases of ectrodactyly are described by Dr. E. Cautley and Dr. J. D. Rolleston in the Transactions of the Royal Society of Medicine.[1]

Description of Case.

This phocomelus child was brought to the out-patient department of the Belgrave Hospital for Children for fits, and was admitted for observation, X ray examination, and photograph. He was well built,

8 days old, and showed no associated abnormality or malformation common in these monstrosities, such as umbilical, inguinal, or diaphragmatic hernia, cleft-palate, hare-lip, undescended testicle, dextrocardia or malformation of the heart, imperforate anus, spina bifida, and so forth. The umbilical cord had not yet dropped, and was black and dry. Head measured 15 inches, and its appearance suggested some internal hydrocephalus, to which I attributed the fits. The child cried vigorously.

On inquiry I found this monster was born as footling of healthy parents on March 24th, the mother having been in labour for eight hours. The period of gestation was estimated at 41 weeks, the mother having had her last menstrual period on June 10th, 1919. Father, 42 years old, is a sailor; the mother, aged 42½ years, has had three other normal healthy children (one boy and two girls, aged 16, 14, and 9 years respectively). One miscarriage in 1912 and no further pregnancy till this year. The mother attributed the child's deformity to her having seen, when about six weeks pregnant, a discharged soldier in a fit which lasted over half an hour. She saw him lying on the ground unconscious with twitching of the face, his arms adducted to his sides, forearm flexed at the elbow, and hands alternately hyperextended and flexed at the wrist. She went to his help and tried to lift him up, but she herself was feeling bad and giddy and dropped down on the floor; she was picked up and taken to her room, where she lay ill in bed for two weeks. She had a constant dread lest she might give birth to a child who might suffer from fits like the soldier, and she would wake up at night hearing and seeing a man in a fit.

For three days after the child's birth she was very excited, disliked the baby, and did not care to feed him. When four days old the child had a fit and became very blue, so the father brought him to the hospital. The child was in the hospital for a week and had fits daily, some of them severe, prolonged, and accompanied by cyanosis. The father was told that there was no hope for the child, and took him home; and death occurred during a fit when 20 days old. Unfortunately a post-mortem examination was not obtainable.

Theories of Causation.

There have been many theories propounded as to the causation of these monstrosities. In ancient times supernatural factors were invoked; some teratologists attribute them to intra-uterine conditions, such as amniotic pressure, adhesions, bands, and intra-uterine amputation, but I am inclined to believe that the chief factor in the causation of the malformation in this case was the strong maternal impression, which led to the arrest of the ontogenesis in the embryonic and neofœtal stage of existence of this child.

In conclusion, I wish to record my indebtedness to Dr. Cautley for his valuable assistance and permission to publish this case.

[1] Sec. Diseases of Children, vol. viii.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on July 8th, Mr. J. D. MALCOLM, the retiring President, being in the chair.

Exhibition of Specimens.

Dr. J. D. BARRIS showed a specimen of Primary Carcinoma of the Fallopian Tubes in a 3-para of 53. The menopause occurred three years ago and she was well till November, 1919, when she began to have repeated hæmorrhages. When she was operated on in May, 1920, the uterus and ovaries were normal, but a columnar carcinoma was found in a Fallopian tube, which was so distended as to resemble a hydrosalpinx.

Dr. A. H. RICHARDSON showed a Fibroma of an Ovary, with warty projections, removed from a girl of 16. Its unusual feature was its warty appearance, as it was surrounded by large papillomata with fissures 1 inch to 1½ inches deep. On microscopic examination no signs of malignancy had been found.

Mr. GORDON LEY read a paper on

The Pathology of Accidental Hæmorrhage.

The first part of his paper dealt with the literature of the subject, which he reviewed at some length. He next read pathological details of the uteri removed from three cases of accidental hæmorrhage, of the kidneys of three cases, and of the liver of two cases. He had used as controls five uteri removed ante- or post-mortem for rupture or for some condition apart from accidental hæmorrhage. He found in all uteri a leucocytic infiltration, both of the decidua and of the myometrium. This was not greater in the cases of accidental hæmorrhage than in the control uteri. He also found granules of fat in the interstitial cells of the connective tissue. These also were not more numerous in the accidental hæmorrhage cases than in the control cases. He found in the cases of accidental hæmorrhage extensive albuminous œdema of the myometrium in the outer part of the wall, both of the body and of the lower uterine segment and cervix. In the control cases there was œdema only of the stretched lower uterine segment. In the cases of accidental hæmorrhage there were focal areas of degeneration, necrosis, and hæmorrhage throughout the myometrium of the body, lower uterine segment, and cervix. The distribution of these areas of necrosis was such that they could not be attributed to the

hæmorrhage. In the control cases, save for a slight vacuolar degeneration of some cells in the myometrium, there was no degeneration and necrosis, except in the stretched, œdematous, and hæmorrhagic lower uterine segment; hæmorrhage was confined entirely to the margin of ruptures and to the lower segment. He found in the liver and in the kidneys of the cases of accidental hæmorrhage parenchymatous and fatty degenerations of varying degree and extent. In one of the control cases the uterus had been suddenly stretched by an extensive intra-uterine hæmorrhage, the result of a mechanical separation of a placenta prævia, followed by the bringing down of a leg which prevented the blood from appearing externally. In this case there was neither hæmorrhage nor necrosis in the wall of the uterus. Mr. Gordon Ley concluded that the the occurrence of these phenomena in cases of accidental hæmorrhage cannot arise from the uterine distension. Other conclusions formed by Mr. Gordon Ley were that accidental hæmorrhage is the result of a toxæmia of the same nature as, and probably identical with, that causing eclampsia. This toxæmia produces the focal necroses and the hæmorrhages in the myometrium; the hæmorrhage results in separation of an area of the placenta, which in turn leads to the opening up of uterine sinuses and copious intra-uterine hæmorrhage.

Discussion.

Dr. T. W. EDEN, after congratulating Mr. Gordon Ley on his paper, said that the mechanical theory of accidental hæmorrhage could not be reconciled with the focal necroses found. The investigation threw a further light on the toxæmias of pregnancy, of which pernicious vomiting and eclampsia were accepted examples, to which accidental hæmorrhage could apparently now be added. It was curious that women with accidental hæmorrhage are not as a rule more ill.

Dr. HERBERT SPENCER also congratulated Mr. Gordon Ley, but in view of the small number of cases described considered the title of the paper somewhat ambitious. Albuminuria was not a constant symptom in accidental hæmorrhage and microscopical decidual changes were known to be variable. He thought that more evidence was necessary before the toxæmia theory could be accepted.

Dr. H. BRIGGS had collected 32 cases; albuminuria was not a constant feature, and in many cases improvement followed without treatment for toxæmia.

In reply, Mr. GORDON LEY said that in a previous paper he had described an investigation from the clinical standpoint, in which 84 per cent. of cases were associated with albuminuria, and he had received accounts from colleagues in which the lowest percentage of this association was 60. He suggested that the bulk of cases without albuminuria were probably cases of lateral placenta prævia.

Remarks by the President.

The PRESIDENT referred briefly to the death of Dr. M. Handfield-Jones, and a message of sympathy was directed to be sent to Mrs. Handfield-Jones. He then said a few words on the cancer problem, with special reference to parasitic theories, with which he was not in agreement.

The meeting closed with a vote of thanks to the retiring president.

TUBERCULOSIS SOCIETY.

A GENERAL meeting of this society was held under the presidency of Dr. DE CARLE WOODCOCK on June 26th, in the City Hall, Cardiff.

Dr. JOHN BROWNLEE (Medical Research Council) gave a résumé of his recent statistical inquiries into the epidemiology of phthisis, dwelling especially on the distribution of the disease at different ages in Wales.

Diagnosis of Early Active Tubercle.

Dr. H. A. ELLIS suggested that in a considerable number of cases it was the duty of the medical man to exclude tubercle rather than to consider its possible incidence. He admitted that this exclusion must take time and care, but in his opinion the enormous importance to the individual and to the family of the threatened persons demands time and trouble, as early recognised active tubercle almost invariably yields to treatment, with the exception of cases in young adult females. Twenty per cent. of the cases who do recover, according to Dr. Ellis, do so within six months of notification. He contended, further, that commencing activity causes autogenous absorption of the freshly-formed tuberculin, producing definite constitutional symptoms some time before lung changes could be due to active development of a tuberculous deposit. Dr. Ellis said that one of the symptoms that demand tuberculous exclusion is malaise without ascertainable cause lasting some time, and most prominent in the afternoons between 4 and 7, in contradistinction to the early morning malaise of other diseases. This malaise is more important if accompanied by loss of weight and nervous irritability and undue fatigue. Sleeplessness in the young, capricious appetite, and digestive disturbances, especially after eating uncooked cellulose, if accompanied by pain, wind, or diarrhœa, are very suspicious and always demand exclusion of T.B., likewise dislike or difficulty of assimilation of fats and fatty food. Coughs and colds, if recurrent and of increasing duration, and all forms of recurrent aphonia, laryngitis, and catarrhs, weak chests with abnormal chest signs, chronic bronchitis, pleurisy, and hæmorrhages are probably, and cold cutaneous abscesses and conjunctival phlyctenæ certainly, tuberculous. He described how he considered active tubercle should be excluded in these cases. He considered that the most important symptom when tuberculosis becomes pathological is loss of weight, and that tuberculosis rarely becomes active, and never serious, without this symptom. Tubercle can never be excluded without weighing-machines, and he advocated monthly weighing of all school children. Under normal conditions of living temperature taken in rectum always became variable or permanently elevated when tuberculosis became active; axillary temperature was useless and mouth temperature unreliable. Acceleration of the pulse was a most sensitive index; if there was no acceleration there was no active T.B. This was a negative sign, but was especially valuable after the deep inspiration practised during chest examination. Sputum was to-day insufficiently considered. More people were killed to-day by the failure to find T.B. in sputum than were saved by its discovery. It was only a negative symptom at best, as was shown in sanatoriums, since T.B. were usually present in under 60 per cent. of the patients. The character of *B. tuberculosis* was considered of great importance by Dr. Ellis. The short, straight, and unbeaded variety suggested dangerous cases with rapid extension, while the long-beaded variety suggested a slow-growing chronic case. The character of the cells was also very important. Albumin and albumose in sputum should always be tested for, as it was reliable evidence of the occurrence of T.B. in a case of bronchitis—usually a most difficult diagnosis. There must be a definite precipitate, as cloudiness does not count. No examination of sputum by itself could ever exclude tubercle. Finally, cutaneous reaction with 1 per cent. O.T. was very reliable; 95 per cent. at least of early active cases responded to this test. This was also in accord with the evidence from intracutaneous and ophthalmic reactions. If other symptoms suggested tuberculosis a 1 per cent. reaction could be considered a positive diagnosis, and where other symptoms were not in accord with the reaction active tubercle was probably present, but only as a definite menace. In conclusion, Dr. Ellis considered that active tubercle could not be excluded in cases showing malaise, nervous symptoms, afternoon fatigue, digestive disturbances, unless weight, temperature, and tuberculin 1 per cent. reaction had been tested and proved negative. Early active tuberculosis was essentially a differential diagnosis, but with these precautions it could be recognised in 95 per cent. of the cases.

The PRESIDENT then described the indications for and the means of performing artificial pneumothorax. The value of this operation in suitable cases, and particularly of massive injections of gas—Dr. Woodcock prefers oxygen—in cases of uncontrollable hæmoptysis, impressed the meeting.

Dr. PARRY MORGAN exhibited the apparatus he has introduced for performing artificial pneumothorax and explained its advantages and method of use. Interesting discussions took place on each part of the programme and the members present afterwards dined together.

On Sunday the members visited the Talgarth Sanatorium, which will be formally opened by the King and Queen to-day, July 17th. This institution, which accommodates 300 patients, stands in the centre of a large estate among the hills of Breconshire. The lay-out is that of single-storey pavilions with separate cubicles for each case. Convalescing patients supply most of the labour required for the large gardens; the original manor house of the estate is about to be converted into a post-sanatorium factory, which will at first be allocated to convalescing phthisical soldiers.

Reviews and Notices of Books.

THE MECHANISM AND GRAPHIC REGISTRATION OF THE HEART BEAT.

By THOMAS LEWIS, M.D., F.R.S., F.R.C.P., D.Sc. London: Shaw and Sons. 1920. Pp. 452 + 20. 47*s.* 6*d.* net.

NEARLY a decade ago Dr. Thomas Lewis published a book entitled "The Mechanism of the Heart Beat," intended to give a complete account of the harvest reaped, largely during the previous decade, by a host of workers—headed by the author himself—in a field of medicine made rich by the application of exact scientific methods. Much has happened since then. A second edition, under a slightly amplified title, now before us, is a work of which its author and English medicine may be justly proud. The extent of progress may be gauged from the fact that nearly half of the 800 references in the bibliography concern papers published since the first edition. There has, however, been no important alteration in the structure of the work. The original building is there, its foundations are strengthened, gaps filled in, and worthy additions made, with the result that, after many years of exact and patient application, no branch of medicine rests on a firmer basis of revealed truth than the branch concerned with the normal and abnormal mechanism of the heart beat.

The book opens with a lucid account, illustrated with colour-photographs, of the anatomy of the special tissues concerned with the origin and propagation of the cardiac rhythm. Then follow chapters devoted to an explanation of the various means by which graphic records, "imprinted by the disease itself," may be obtained and interpreted; after which we are given a detailed consideration of the several disorders of the heart met with in clinical medicine. The plan, an admirable one, is the same in nearly every case—an account of the disorder, as it is produced experimentally in animals, is followed by a description of the identical condition occurring in patients. Both conditions are illustrated with numerous tracings. In the chapters on auricular fibrillation, however, the usual order is reversed, a description of the clinical observations preceding that of the experimental proof. In this way the author is able to present the subject as it originally presented itself—namely, as a clinical problem—and to show how the solution gradually unfolded itself and how by persistent inquiry convincing evidences were at length obtained as to the true nature of this important disorder of the human heart. Nothing could be more convincing than the weight of evidence brought to bear in support of each proposition and a comparison of the animal and human tracings laid side by side. Up till now hypothesis has not had, and could not have in such a book, any consideration. But at this point there follow three most interesting and suggestive chapters in which the author allows himself, almost apologetically, not indeed to speculate, but to disclose certain general conceptions which have guided his work. He states these views with reserve, and his vision seems justified; for after discussing and discarding Mines's circus movement as a satisfactory explanation of auricular fibrillation, a slip inserted later tells us that recent and unpublished observations strongly support this hypothesis.

Since the ultimate object of all medical research must be the prevention and alleviation of disease, it seems not impertinent to inquire what debt we, as physicians, owe to this new cardiology. No better summary could be given than that of the author, when, in a vigorously worded preface, he speaks of the immediate value of graphic records to practical medicine. He says:—

> "These records have placed the entire question of irregular or disordered mechanism of the human heart upon a rational basis, so giving to the worker the confidence of knowledge; they have influenced prognosis and have rendered it more exact; they have potentially abolished the promiscuous administration of cardiac poisons, and have clearly shown the lines which therapy should follow."

This is, of course, a great debt, but it cannot be forgotten that disorders of mechanism form only a part—a large part it is true—of heart disease, and that graphic records help us but little in that great group of sufferers whose cardiac mechanism is apparently normal but inefficient. Much, indeed, remains to be accomplished before the clinical study of heart disease as a whole can be looked upon as an exact science. It may be doubted whether we shall get much further help from animal experiments, and it is probable that a more intensive study of heart disease in all its forms in the human being will give us the knowledge of which we are in urgent need. Dr. Lewis has himself shown us in "The Soldier's Heart and the Effort Syndrome" what can be achieved by such study, and it is greatly to be hoped that in years to come he will have more to offer on the purely clinical side of this subject.

Little, perhaps, can be hoped for in the direction of immediate treatment. We can, indeed, rest an exhausted heart; we can exercise it when it is flabby; we can shield the helpless ventricle from the necessity of answering the foolish calls sent to it by a fibrillating auricle. But it seems clear that as we can never expect to replace a damaged muscle, our chief energy must be directed towards the prevention and better treatment of those affections which bequeath heart disease as their legacy. We look to the bacteriologists to find the cause and perhaps a specific cure for rheumatic fever; there is hope in the earlier and more efficient treatment of syphilis which is now possible; while there is yet much to be done in the investigation of those insidious and progressive degenerations of the cardiovascular system which spoil and shorten so many active lives. With regard to diagnosis, however, progress seems more likely. The conception of the "effort syndrome" has rendered necessary a closer investigation and more exact analysis of symptoms—the differentiation especially of those pathognomonic of heart disease, and an explanation of their mode of production. A difficult study this, for, being subjective, it will require of its workers a training in accuracy and method at least equal to that of the laboratory worker. Physical signs, again, want overhauling in the light of modern knowledge, with a clearer indication of those which are undoubted evidence of disease. Some of them have already been put to the test, and have emerged battered and dishevelled from the ordeal. We have less confidence than formerly in our estimation of the size of a heart by percussion, and systolic murmurs have been robbed of the significance they were long thought to possess. It is at least possible that many other of our traditional signs and methods have no other foundation than that "craving and veneration for hypothesis" against which the author of the book under review protests. With regard to prognosis we require more facts and less speculation. Here the general practitioner can help medicine in a very practical way by careful records of after-histories, and Dr. Lewis has elsewhere pointed out that the Ministry of Pensions is becoming possessed of a mass of valuable information under this heading which can be made good use of in the future.

The harvest, then, is not yet gathered and we are far from the gleaning. But to the workers necessary to complete our store of knowledge many should be added by the inspiration derived from reading this book.

PASTEUR: THE HISTORY OF A MIND.

By EMILE DUCLAUX. Translated by E. F. SMITH and F. HEDGES. London and Philadelphia: W. B. Saunders Company. 1920. Pp. 363. 21*s.*

Duclaux was born in 1840 and first came into contact with Pasteur, 18 years his senior, at the Normal School in Paris in 1859. First as pupil, later as assistant, he stayed with Pasteur for six years, then went off to professorships of chemistry and physics and did not finally settle down in Paris till 1878. In 1888 he became director of the newly founded Institut Pasteur, started the *Annales*, and was the glowing apostle of his master and of his own ideals until his death in 1904. This book was written soon after Pasteur's death in 1895, but seems to have attracted very little notice. Professor Erwin Smith came across a secondhand copy and was so impressed that he thought an English version was

worth while. It may be so, though it is likely that there will be some who differ from him. The book is, indeed, a wonderfully sympathetic account of a pilgrimage which will always be one of the landmarks of biological progress, its troubles and its retreats no less than its successes. But one wonders a little whether the Pasteur cult is not at times liable to be overdone: the study of the past is useful only in so far as it helps us to get forward to-morrow, and the position with which Pasteur had to deal is, through his own immense progress, part of a past so remote that it seems to-day unreal and disconnected from the current world. A good many, in short, will probably find the book rather dull. In the delightful American fashion, there are several portraits of Pasteur and two of Duclaux, which make one wish that there was more about the latter than the translators' 30 pages of introduction, which are the best in the volume.

THE BREAST: ITS ANOMALIES, ITS DISEASES, AND THEIR TREATMENT.

By JOHN B. DEAVER, M.D., LL.D., Sc.D., and JOSEPH MCFARLAND, M.D., Sc.D. Assisted by J. LEON HERMAN, B.S., M.D. London: William Heinemann (Medical Books). 1920. With 8 coloured plates and 227 illustrations in the text. Pp. 724. £2 net.

Dr. Deaver and his colleagues have managed in 700 odd pages to present, lucidly and exhaustively, all that is claimed by the title, and the completeness of the bibliography gives their book a value possessed by no other work on this subject in the English language. The authors have read widely and pay just tribute to their sources of information. If there is a fault it lies in the diffidence of their claims, and the avoidance of dogmatism, which we sometimes find welcome in a high authority.

The book opens with an untrammelled account of the development, histology, anatomy, and physiology of the human breast, followed by an instructive description of the congenital and acquired anomalies. The next section deals with the infections, and contains an excellent account of tuberculous breast lesions. Thoughtful consideration is given to the cystic conditions of the breast. Dr. Deaver is not one who sees in every mastitic breast a precancerous condition. He prefers, after reviewing the inflammatory and neoplastic hypotheses, to see chronic interstitial mastitis as a process of abnormal involution evidenced microscopically by both cystic and proliferative changes. Although admitting its frequent association with carcinoma, he denies the evidence and conclusions of Mr. Sampson Handley, who frankly states mastitis to be the almost universal precursor of carcinoma. Deaver is in agreement with opinion in this country when he states that the question of the malignancy of a breast tumour is seldom in doubt, and that it is unusual for the frozen section to reveal that which the gross section could not demonstrate.

After a brief but engrossing presentation of the general pathology of tumours we get a detailed clinical and pathological description of the benign tumours of the breast. Seventy pages are given to sarcoma, and the remaining 200 to the question of cancer. The evolution of the modern conception of cancer is traced, and the hypotheses of each succeeding generation are considered. A résumé is given of the more recent work upon the possibility of the sero-diagnosis of cancer. The authors discuss the meiostagmin reaction depending upon the laws of surface-tension; v. Dungern's complement-fixation test; the antitrypsin reaction of Brieger and Triebig; the various tests depending for their demonstration upon hæmolytic phenomena; and the application of Abderhalden's colour-reaction for the detection of alleged anticancerous ferments in the blood. In the latter connexion, it should be remarked that Leitch's destructive criticism of Abderhalden's claims was not then in the authors' hands. The authors refuse to lend their authority to a classification of breast cancer upon microscopical evidence alone. Their method is clinical, and they are content to recognise six varieties of cancer of the breast. The signs of breast cancer are given in detail, and their significance considered. Some pathologists would prefer to differentiate "dimpling of the skin," which is a mechanical phenomenon, from true *peau d'orange*, which has been shown by Leitch to be an actual cancerous invasion of the skin.

In a later chapter Dr. Deaver discusses the criteria which determine operability, and here the sane judgment and moderate claims mark the practised clinician. The operative treatment he regards as having originated with Charles Moore, of Middlesex Hospital, in 1867, to undergo, at the hands of Lister, Watson Cheyne, Volkmann, and Halsted, the developments which have given us our modern "en bloc" amputation. We miss a mention of Mitchell Banks's work in this connexion. Full justice is done to Handley's doctrine of permeation and its necessary corollary of perilymphatic fibrosis, and the authors state that the removals of fascia as advocated by Handley are imperative in the modern surgery of breast cancer. We gather, however, that, like Halsted, they favour the wide removal of skins, and view with suspicion the narrow skin removals to which the surgeon is tempted who follows too wholeheartedly in Handley's steps.

The book closes with a chapter from the pen of Dr. Pfähler, from which, in a footnote, Dr. Deaver appears to disassociate himself. A full account is given of the resources of the radiologist as applied to breast cancer, and if the trend appears to some to be too optimistic an acquaintance with the work which Dr. R. Knox and others are doing in London might restore their faith. We congratulate the authors upon their achievement, and most heartily recommend the book to all. For the student it is a library of knowledge, for the tutor an easy work of reference, and for the consultant a guide both for prognosis and operative treatment.

LE SYMPATHIQUE ET LES SYSTÈMES ASSOCIÉS.

Anatomie Clinique, Sémiologie, et Pathologie Générale du Système Neuro-glandulaire de la Vie Organique. By A. C. GUILLAUME. Preface by Prof. PIERRE MARIE. Paris: Masson et Cie. 1920. Pp. 160. Fr. 6.50.

Dr. Guillaume has written a particularly useful little compendium of knowledge on the sympathetic nervous system—the Land of Promise, according to Professor Pierre Marie. He rejects the terms "involuntary" (Gaskell), "autonomic" (Langley), and "vegetative" (Higier), preferring "organic neuro-glandular system" to any—since glandular and sympathetic systems are so closely interwoven as to be physiologically and pathologically inseparable. He uses the expression "parasympathetic" for the pelvic and cranial sections of the system, thus himself scarcely escaping the redundant nomenclature to which most writers on the subject seem committed. A simple, non-committal, not too detailed terminology is requisite if confusion is to be avoided. A morphological description of the system is followed by a consideration of its central representation. According to the author there is evidence that in the immediate vicinity of the motor area of the cortex are sympathetic "centres," and the dubious contention is advanced that the frontal lobes are responsible for somatic emaciation and the occipital for adiposity. The physiology of the system, sympathetic and parasympathetic, is next discussed in considerable minuteness, and various syndromes connected with irritative or destructive lesions of its different parts are sketched. Its pharmacology, too, receives due attention. Some criticism is directed to Eppinger and Hess's conceptions of sympathicotonus and vagotonus, and the latter term is replaced by neurotonus, which seems even more unsatisfactory.

The diagrams illustrating the book are unusually clear and uncomplicated, and are worth individual study. In Fig. 4 the position of the important intermedio-lateral tract does not correspond precisely to what we have learned from the authoritative work of Bruce on the subject. The arrow in Fig. 5 indicating the "Masse de Stilling-Clarke" points erroneously to the midline of the cord. In Fig. 6 "Bogiel" is an obvious slip for "Dogiel." We miss any diagrammatic representation of the central connexions of the cervical sympathetic through the formatio reticularis of the medulla.

THE NEW CHILDREN.

Talks with Dr. Maria Montessori. By SHEILA RADICE. London: Hodder and Stoughton. 1920. Pp. 170. 4s.

THIS is the work not of a critic, but of an enthusiastic admirer. And the Montessori methods, in theory as well as in practice, are in need of criticism, else why is there so much hostility among teachers to Montessori teaching at the present day? By criticism we mean a fair, impartial examination of the theory and of the practice by those who are competent, both in their expert scientific knowledge and in their sound understanding of child life, to analyse and to estimate values. We believe that the Montessori system of teaching will emerge vindicated and triumphant from such criticism, which, we repeat, is not to be found in this little volume. "The New Children" makes good reading for the half-initiated; it is fluent, graphic, and versatile. It touches lightly yet significantly upon many matters—for example, psycho-analysis—which are Greek to those ignorant of the subject and platitudes to the expert, while relevant to the whole problem. The author has evidently grasped the scientific truth that permeates and inspires the Montessori doctrine and has appreciated, though she may not have revealed it clearly, the relativity of the Bergsonian philosophy. And the reading public to which, on the whole, this book is likely to appeal, need enlightenment in these two directions in order to appreciate the full significance of their application to Montessori teaching. The chapters on music, suggestion, and training for citizenship attempt to justify certain phases of the Montessori system which have frequently been exposed to prejudicial criticism from those who have no acquaintance with work in the actual schools, and who forget that application of the methods by other persons in other lands may be influenced and altered by local and by personal factors. Mrs. Radice's book is an endeavour to report Dr. Montessori's own interpretation of her methods of teaching. She does not mention, however, the tendency in this country to liberate the principles governing the system from association with one personality only, and to embody them in what is now known as Auto-education.

JOURNALS.

American Journal of Ophthalmology. January-May. 1920.—We select a few articles for comment. January: H. V. Würdemann. Syphilitic Neuroretinitis. There is a coloured plate showing six examples of this condition. Out of 460 syphilitics under treatment at Camp Lewis 14 cases were found, in only 4 of which had the patient observed any diminution of vision. The severity of the cases varied very much. In no case was there a swelling comparable to cases of choked disc. The course of low grades of optic neuritis, from whatever cause, varies from a few weeks to several months, and may be followed by complete resolution, or in severe cases may leave a certain amount of greyish atrophy. The treatment is that of its cause.—A. E. Ewing. Test Objects for the Illiterate. A useful compilation of tests from various sources.—E. E. Maddox (Bournemouth). Venesection as a Preventive for Expulsive Hæmorrhage. A case of cataract in a patient of 78 suffering from myxœdema, malaria, and gout. Operation on the first eye was spoiled by an expulsive hæmorrhage. Various measures were taken to safeguard the operation on the second eye, the most important one being a free venesection immediately before the operation. The result was entirely successful.

February: Arnold Knapp. Hypotomy after Trephining. Four cases are related. The 2 mm. trephine was used in the first three and a 1½ mm. trephine in the fourth. The cases were watched for periods of from four to six years. Out of the six eyes operated on, in three there was no loss of sight or ocular change. In one the eye was lost from phthisis bulbi, and in the remaining two there was cataract. The author deems it advisable to use the smaller size trephine.—W. G. Dickinson. Ocular Manifestations in Cerebellar Syphilis. By far the larger number of cases reported have been predominated by ophthalmoplegias of the external muscles and pupillary dyscrasias. Optic nerve-changes vary from mild degrees of papillitis to well-advanced choked disc.

March: J. Van der Hoeve. Eye Lesions Produced by Light Rich in Ultra-violet Rays. The author believes that a principal cause of the origin of senile cataract is the influence of light rich in ultra-violet rays, such as daylight, which causes the opacity by interfering with the nutrition of the lens, the injury being due to damage to the ciliary processes by rays dispersed against their epithelium. In case these rays, instead of being dispersed, pass through the lens they are liable to cause senile macular degeneration. According to this theory these two conditions are mutually exclusive.—L. Weekers. Alterations in Twilight Vision in Occupational Nystagmus. The night blindness so commonly seen during the late war as a result of fatigue chiefly occurred in infantrymen who were subject to the most trying conditions during night marches. In coal miners suffering from nystagmus it is also sometimes found, and here the same two conditions account for it, fatigue and bad lighting conditions. It is an effect of fatigue in the mechanism for dark adaptation.

April: Burton Chance. Symmetric Macular Degeneration in a Brother and Sister. A coloured plate shows a good example of the condition described by Rayner Batten, Darier, and others.

May: H. V. Würdemann. The Fundus of the Eye after Death. Two coloured plates are given showing the fundus oculi respectively 30 minutes and 2 hours after death. The changes are not unlike what are found in cases of complete obstruction of the central artery of the retina during life.

The Journal of Industrial Hygiene. London: Macmillan and Co., Ltd. 3s. 6d. monthly, or 21s. yearly.—The subject of industrial diseases as exemplified by industrial poisons has been dealt with in several recent articles in this journal. An interesting report by Professor S. Delépine on a fatal case of arseniuretted hydrogen was published last November. The interest lies in the few recorded instances of such cases. The symptoms—jaundice with sickness, diarrhœa, and hæmoglobinuria—were typical, and arsenic was found in the liver; while the organs, particularly the kidneys and liver (the conditions of which are illustrated), showed marked degenerative changes. The rubber industry is the subject of two references. In the March issue Dr. T. M. Legge discusses the occurrence of cases (one fatal) of purpura hæmorrhagica caused by continued exposure to fumes of benzene (crystallisable benzol). The symptoms and pathological findings were those of aplastic anæmia, as exhibited occasionally by workers manipulating T.N.T. Improved ventilation, together with careful medical supervision, has put a stop to the occurrence of further cases. Messrs. N. A. Sheppard and S. Krall describe in the May number a rash due to hexamethylene-tetramine, used as an organic accelerator in vulcanisation; and, after careful consideration, propose as a remedy the application to exposed parts of a saturated solution of sodium bicarbonate. The rash starts as an erythema, quickly followed by vesicles which rupture and exude serum; it is most prevalent in hot weather, and a direct relation appears to exist between sweating and its occurrence. Exposed parts of the face, neck, and forearms are particularly affected. The remedy suggested has given valuable results.

Dr. W. Salant reviews in the June issue the pharmacology of the heavy metals, and describes special laboratory investigations into the toxicity of zinc and tin. Administration of these metals to animals was followed by symptoms of poisoning, but relatively large doses were required unless the metal was introduced directly into the circulation. The author concludes that while certain heavy metals, such as lead, are degenerative poisons, they are apparently well borne when taken with food; but he gives a warning that if the digestive mucous membrane be out of order absorption may occur and serious damage follow.

Dr. T. M. Legge, in the April number, deals with 20 years' experience of notified industrial diseases—i.e., anthrax and poisoning by lead, arsenic, mercury, and phosphorus. This résumé is one of great value; from it we see how, when once the means for preventing a disease are understood, that disease may be reduced. Lead-poisoning may be instanced; its cause is *par excellence* dust inhalation; there were 1058 cases in 1900 and only 144 in 1918. Toxic jaundice, which only became notifiable in the last three years under review, is the only other disease similarly controlled; there were 206 cases among munition workers in 1916, and only 34 in 1918. Important as these results are, and skilfully as they are presented, we are struck with the comparatively small portion of the field of industrial troubles covered by notifiable diseases; and feel that the health of the industrial worker cannot be left to wait for improvement from procedure on these lines. Investigation into only 265 cases of all kinds in 1918 among some eight million workers is hardly a convincing effort on the part of those responsible for factory supervision.

A further article on diseases for which workmen's compensation is payable, by the same author, in the May number gives support to this view. Here are reported as occurring among the miners, who number about one million, some 5500 cases of nystagmus, beat-hand, beat-knee, and the like, which are not notified or medically investigated. Dr. Legge sets out in clear and easily understandable terms the principles underlying, and the somewhat complicated procedure of, the Compensation Acts, and also describes action taken in South Africa and New Zealand with regard to fibroid phthisis. This article is one of great value to every practitioner working in an industrial area.

THE BRITISH MEDICAL ASSOCIATION.

EIGHTY-EIGHTH ANNUAL MEETING AT CAMBRIDGE.

SECTION OF SURGERY.

WEDNESDAY, JUNE 30TH.

Gastric Ulcer.

THE discussion on Gastric Ulcer on June 30th was opened by Sir BERKELEY MOYNIHAN. The burden of his message was a strong plea for the practice of partial gastrectomy as the operation of choice in the treatment of gastric ulcer, and he supported his view with impressive statistics of his results. He claimed that the technique of operative treatment was now simple and perfect, and that good results had been rendered almost certain. Surgery had, indeed, now risen beyond mere technique. It should be the surgeon's aim to discover if possible the primary source of the condition which produced the ulcer and to rectify this. Often the source was to be found in the abdomen; in other cases it lay in the teeth or the air sinuses, and it was therefore important to make an exhaustive examination of the buccal cavity and its surroundings. Operative treatment was a confession that medical treatment had failed, and often such medical treatment as was practised, especially in hospital out-patient departments, was from the beginning doomed to fail. Close supervision for months was necessary if so large an area as a gastric ulcer was to heal, and it was always necessary to treat the poor condition of the patient by rest in bed, with alkalies by the mouth, and sometimes by the transfusion of blood. Starvation treatment he believed to be radically wrong, and preferred to give as much fluid by the mouth as could be taken.

Gastro-enterostomy, first done by Woifler on Sept. 27th, 1889, was still the favourite operation, and no operation in surgery was followed by swifter or more striking results. Surgical enthusiasms were very contagious things, and soon the operation came to be practised in cases in which there was no obstructive element; failures resulted, and for these there were several reasons, such as that the anterior operation was done instead of the posterior, that the opening was too small, that the gut had been rotated, and various other technical faults. Also there had been bad choice of cases. Sir Berkeley Moynihan emphasised the fact that gastric ulcer was a relatively rare condition. Operations had been done on the strength of a symptomatic diagnosis, and he had in many instances undone a gastro-enterostomy where the real source of the trouble was found to be an appendix abscess, an empyema of the antrum, cholelithiasis, tabes, or even the vomiting of pregnancy.

Cases of gastro-enterostomy could be roughly divided into three categories: 1. Those in which results were excellent. In these the ulcer was near the pylorus and perhaps had healed, so that there was a partial obstruction, or spasm of the pyloric end of the stomach. 2. Those in which results were poor; very many of these were attended by a non-healing ulcer of the jejunum after the operation. 3. Those in which a carcinoma eventually developed, presumably arising in the base of an originally non-malignant ulcer. No agreement was yet possible as to whether or no carcinoma really did develop in the base of a simple ulcer, but the clinical histories of cases, pathological investigations, and the histological examination of excised ulcers all tended to show that this did actually occur. Gastro-enterostomy had now, as an operation, ceased to satisfy modern expectations. Nevertheless, many surgeons still relied upon it, and he himself parted with it with reluctance. It had served him well. He had had no death in the last 400 cases in which he had practised it, and he felt towards it no menace in his heart.

Sir Berkeley Moynihan mentioned briefly the various modifications of the operation that were practised, and drew attention to the value of occasionally performing a jejunostomy in addition to gastro-enterostomy. It was noticeable that gastric and duodenal ulcers affected quite different types of stomach. The gastric ulcer was found in atonic, lazy stomachs; the duodenal was associated with the strong stomach, and often occurred in young men and athletes. Gastric ulcer was at once a rare and a serious disease, and he had found a mortality of 17½ per cent. occurring in the three years following operation, which was in itself a condemnation of gastro-enterostomy. He had found, on the other hand, that a partial gastrectomy was actually a safer operation, with a mortality of only 2½ per cent. Patients who had undergone it ceased absolutely to be patients. They never came back with recurrent symptoms, or, indeed, with anything at all, except a heart full of gratitude. Sir Berkeley Moynihan laid down with great emphasis that it was the little things that counted in the achieving of success. Care was the keynote—care in the preliminary examination, in preparing for the operation, and during the operation. Speed was also important, but could only be attained by long practice; it should be the child of experience and not the parent of disaster.

Sir Berkeley Moynihan then gave some striking statistics to show the relative mortality of the allied conditions—gastric ulcer, 2·9 per cent.; duodenal ulcer, 0·5 per cent.; jejunal ulcer, 7 per cent. This very serious complication with jejunal ulcer was a strong argument in favour of partial gastrectomy as against gastro-enterostomy. He did not, however, claim that finality had been reached in this operation. He was not yet satisfied, for happiness depended upon the existence of unsatisfied, but still attainable, desires. He concluded with a technical point—that it is unnecessary to use silk or thread in these operations. It was perfectly safe, and far better, to use nothing but the finest catgut.

Dr. CHARLES H. MAYO (Rochester, Minn.), who next addressed the meeting, received a great ovation; he modestly disclaimed this on his own account, but accepted it as the representative of the medical profession of the United States. Dr. Mayo did not attempt to refute any of Sir Berkeley Moynihan's contentions, but contributed a learned and weighty review of the subject under discussion. He gave statistics to show that gastric ulcer was a relatively rare disease and that the ulcer was nearly always single. In discussing the ætiology of gastric ulcer he put forward the theory that the ulcer is produced by an association of local chemical effects, with a direct interference with circulation by infarction emboli of bacteria. Characteristic bacteria could be grown from an excised ulcer, and an injection of these into animals produced a high percentage of similar ulcers. The chronicity of the disease was to be explained by the chemistry of the bacterial products. Medical treatment, the coördination of which was chiefly due to Dr. Sippey of Chicago, was directed towards the control of acidity in the stomach by dilution and neutralisation, but such treatment produced only temporary results and could not always be obtained. During the long periods of treatment which are necessary urgent conditions, such as perforations, may arise which demand surgical treatment, and not a few cases develop cancer, resulting in death. In the past surgery had sometimes earned discredit through the performance of gastro-enterostomy on the basis of a mistaken diagnosis, and in the Mayo Clinic a few hundred such operations had had to be undone.

Dr. Mayo laid stress in making a diagnosis on the clinical and dietetic history. He distinguished between qualitative and quantitative food-dyspepsia, the former being usually not due to an ulcer. Hæmorrhage was not a symptom of importance in most cases. He placed great reliance on X rays in diagnosis, a correct diagnosis being arrived at by this means in 95 per cent. of cases; it was particularly valuable in helping to distinguish between gastric and duodenal ulcer. He agreed with Mr. Herbert Paterson that after gastro-enterostomy had been performed the alkaline secretions of the duodenum tended to reduce the acidity in the stomach, and that this change in local environment encouraged healing of the ulcer. At the Mayo Clinic the mortality after operation for gastric ulcer was nearly double that for duodenal ulcer. Various statistics were given of the position, age- and sex-incidence of gastric ulcer. Investigations that had been carried out led Dr. Mayo to reiterate that gastric ulcer is potentially malignant.

In discussing the various operations that could be performed the anterior route of approach and anterior anastomosis were favoured. Gastro-jejunal ulcer was believed to be due to the use of permanent suture material and to the presence of chronic foci of streptococcal infection. Dr. Mayo stated, in conclusion, that surgical treatment was the best recognition of the value of medical treatment by permanently overcoming obstruction and by lowering acidity with the patient's own alkalies.

Mr. HERBERT PATERSON (London) made a strong plea for clear-thinking concerning the indications for operation and its results. In this connexion he accused Sir Berkeley Moynihan of an admirable inconsistency between his scepticism as to there being any physiological factor in the results of gastro-enterostomy and some of his other statements. He was never afraid to

change his attitude, but the change was made in so graceful and facile a manner that it was hardly noticed even by his friends. Mr. Paterson believed firmly himself in the reduction of acidity after operation by the entry into the stomach of alkaline duodenal juices. After undoing a gastro-enterostomy there was a return to the previous degree of acidity, whereas a decreased acidity does not accompany the operation if an entero-anastomosis be done at the same time. Concerning the development of cancer in a gastric ulcer, he considered that there was no clinical evidence for it, and that the pathological evidence was unconvincing.

Mr. A. H. BURGESS (Manchester) believed that too much was expected of gastro-enterostomy. Its object was twofold—to get rid of the ulcer and to get rid of hyperacidity. The best results were obtained from a combination of excision and gastro-enterostomy. But excision was often very difficult, and, consequently, the best routine operation was a partial gastrectomy. This was not to be done when the ulcer was very high in the lesser curvature and when it was too extensive. In these cases gastro-enterostomy with jejunostomy was the best treatment. The physiological effect of the operation he considered to be proved. He discussed whether the edges of the opening in the transverse mesocolon should be attached along the line of anastomosis or at a distance, and favoured the second alternative, having seen a constricting scar formed within 12 days of the operation. He emphasised the importance of giving alkalies in after-treatment.

Mr. CHARLES RYALL (London) regarded a gastric ulcer as a simple inflammatory process with a predisposing cause in hyperacidity and an undetermined exciting cause. Ulcers do heal, and a gastro-enterostomy had been proved to provide a physiological rest. No fixed operation should be used, and excision should not be done in every case. He believed that an exaggerated importance had been given to the development of carcinoma in an ulcer.

Professor J. M. T. FINNEY (Baltimore) stated that in practice he had found it hard to diagnose the presence of a gastric ulcer even with the abdomen open before him. Sometimes there was no response to treatment, and he had failed often enough to be sceptical of any rule. Speaking on behalf of "the common barnyard surgeon" he considered that every case should be treated on its merits. He advocated pyloroplasty owing to the opportunities it gave for making a thorough examination of the stomach. The group for which resection was suitable was ever widening. He had had no mortality yet, but it was bound to come, and he was therefore sorry for every patient upon whom he operated.

Mr. W. BILLINGTON (Birmingham) was still seeking for a satisfactory explanation of the symptoms. He discussed the way in which the site of the ulcer influenced the success of the operation, and believed that excision alone was a bad operation. He was shaken in his belief in the physiological effect of gastro-enterostomy, as he had obtained better results by combining it with a jejuno-jejunostomy, so that alkaline fluids were prevented from reaching the stomach. Every ulcer in the body of the stomach he treated as an hour-glass stomach by making a double opening, and had obtained good results in 50 cases.

Mr. R. P. ROWLANDS (London) dwelt on the uncertainties of diagnosis, and on the necessity for examining the whole abdomen at operations. Gastro-enterostomy was like magic and should be used with caution. He insisted that it was perilous to advocate the extended use of so difficult an operation as partial gastrectomy by the general surgeon.

After a few remarks from Sir GEORGE MAKINS,

Sir BERKELEY MOYNIHAN made a short reply to his critics. He defended his scepticism concerning the hydrochloric-acid findings, which in any case were below normal in a large number of *proved* gastric ulcers, and he gloried in his inconsistency. The operative mortality from gastro-enterostomy, which was often followed by a fatal carcinoma, was equal to that following gastrectomy, which cured all patients for ever. Mr. Paterson, he said, had long been a devout worshipper at the shrine of the goddess Hyperchlorhydria, and he described him in the following lines from Shakespeare's sonnets:—

> O, know, sweet love, I always write of you,
> And you and love are still my argument;
> So all my best is dressing old words new,
> Spending again what is already spent.

Mr. FRANK KIDD (London) opened the second discussion on

The Treatment of Calculi in the Pelvic Part of the Ureter.

Stones in the ureter, he said, were usually single. There were several stages in the effects following the presence of a stone. Fibrosis gradually developed in the tissues of the pelvic wall surrounding the stone; then the ureter above the stone became dilated, bacterial infection arrived by the blood-stream or lymphatics, and a pyonephrosis resulted. Sometimes, however, the calculus was silent for years, and then gave rise to symptoms resembling renal colic. An accurate diagnosis was absolutely essential, and for this X rays should be used. There were fallacies in the shadows produced by various other opaque bodies in the pelvis, and an opaque ureteric bougie or the injection of 20 per cent. colloidal silver must always be used to confirm the X ray diagnosis before any operation was done.

He considered that in treatment no operation was necessary in the majority of cases. A chance should always be given for the natural passage of the stone, as there was no time-limit for this; the ureter was rarely completely blocked, and the kidney was often able to recover after prolonged partial blockage. An operation, however, should be done in cases that were infected, when the stone was bilateral, where there was calculus anuria, or when there was long-established and fixed pain. In many cases an operating cystoscope could be used. A natural passage of the stone could be encouraged by the injection of parolein round the stone, or incision and dilatation of the mouth of the ureter could be practised, followed by extraction of the stone with forceps. In operating an inguinal or mid-line incision could be used. He himself usually employed the inguinal route, reserving the middle-line incision for bilateral stones or for cases of unusual difficulty. Sometimes stones moved in a dilated ureter, and an X ray photograph should always be taken just before the operation. For purposes of diagnosis it was essential to detect blood microscopically in the urine. Mr. Kidd's main contention was for conservative methods in treatment.

Mr. SWIFT JOLY (London) disagreed with Mr. Kidd on his chief points. He preferred the median incision in most cases, and considered that operation was usually the most satisfactory method of treatment. This was determined in many cases by the size of the stone, since only those that were smaller than orange-pips could be readily dislodged by injections of the ureter and similar methods. It was also helpful to take X ray photographs after successive attacks of colic, and so determine whether the stone showed any tendency towards moving or not.

Mr. GREY TURNER (Newcastle-on-Tyne) was against the performance of an operation if the stone was small. An examination of the patient per vaginam or per rectum was often helpful, though sometimes omitted.

Mr. ROWLANDS had removed a number of ureteral calculi which, though large, were not opaque to X rays. He regarded cystoscopy, combined with an indigo-carmine injection, as a useful method of confirming a diagnosis of obstructed ureter. He was opposed to exposing the kidney to the risk of destruction for so long a time as was advocated by Mr. Kidd.

Sir HAMILTON BALLANCE (Norwich) and Dr. MAYO also contributed some remarks to the discussion.

THURSDAY, JULY 1ST.

Carcinoma of the Rectum.

The discussion on July 1st on the Treatment of Carcinoma of the Rectum was opened by Mr. ERNEST MILES (London), who appeared as the advocate of his abdomino-perineal method of resection of the lower bowel. He contended that all operations must be founded on the pathological findings, and that removal of any growth must include the whole of the tissues affected by the disease. Carcinoma of the rectum spread by

three methods—by direct extension, by the venous, and by the lymphatic channels. Of these the extra-mural lymphatic channels were by far the most important, and he illustrated by diagrams, which were based on his own investigations, the various routes, disposed in three zones, by which cancer cells might reach the lymphatic glands situated at the bifurcation of the common iliac artery. The most vulnerable tissues were the perianal fat and the levator ani muscle, the retro-rectal glands, and the parietal attachment of the pelvic mesocolon.

Mr. Miles then reviewed the various methods of perineal resection of the rectum, and dismissed them all as inadequate. He traced the various stages by which the operation from below had been extended, but pointed out that the most radical of these left the pelvic mesocolon behind, which was still out of reach. He condemned as unsound those operations which attempted to preserve a continent anus. He arrived thus at the description of his abdomino-perineal operation, which was planned with a view to the removal of the whole of the pelvic mesocolon, "the axilla of the rectum." He admitted that his operation mortality had been at first as high as 43 per cent., but it had now fallen to 18 per cent., whereas, if the pelvic mesocolon were not removed, 100 per cent. died from recurrence of the disease. He contended that the operation was particularly suitable for early cases, but should not be done in old patients, who could not stand a severe operation. In these a colostomy or a perineal excision could be performed as a palliative.

The subsequent discussion resolved itself into a contest between those who agreed with Mr. Miles and those who were in favour of operating from below in most cases.

Mr. GREY TURNER, while agreeing with Mr. Miles as to the mode of spread of the disease, believed that as an early diagnosis came to be more frequently made, so a local removal would be more often adequate. He was unable to understand how Mr. Miles came to have 100 per cent. of failures if the pelvic mesocolon were not removed, as he was himself able to record a number of cases of apparent cure after a local operation. Nevertheless, surgical progress must not be clogged by considering operative mortality in a disease which resulted in 100 per cent. mortality if left alone. For growths high up in the rectum perineal or sacral resection would not be enough, and he would not hesitate in that case to remove the pelvic colon by the abdominal route. In considering the range of operability he was not deterred by local fixation of the growth unless the bladder were involved. Often a preliminary colostomy rendered a growth operable when it had seemed at first inoperable.

Mr. P. LOCKHART-MUMMERY (London) said he had been one of the first surgeons in this country to practise the abdomino-perineal operation. He was still performing it in special cases, but had abandoned it as a routine and was now trying to develop a technique which, while giving a free removal of the growth, would reduce the operation mortality to a reasonable level. During the present year he had had no deaths in 24 cases operated upon. The operation was usually done in two stages, the first of which was a colostomy through the left rectus muscle. The second operation for removal of the rectum was done under spinal anæsthesia a week later. The anus is first closed and the rectum then freed by dissection from in front and from the perineum upwards. The bowel is divided with the cautery between clamps and the end is invaginated. The wound is closed without drainage. The late results appeared to be quite as good as were obtained after the abdomino-perineal operation, while the immediate mortality was reduced almost to nil.

Mr. BURGESS, while convinced on logical and theoretical grounds that Mr. Miles was right, did not follow him out in practice, being deterred by the high operation mortality. He agreed that if the abdomino-perineal operation were used at all, it must not be reserved only for bad cases. The earlier the case the more extensive was the operation that was indicated.

Mr. RYALL was strongly of the opinion that no routine operation should be performed, but that every case should be considered strictly on its merits. Mr. Miles's operation he believed to be the only sound and scientific one, and he was confident that time would reduce the mortality to a low figure. He considered that an early colostomy to remove sepsis and inflammation was an exceedingly important part of the treatment.

Dr. H. H. BROWN (Ipswich) recorded several cases that were alive and well after a relatively restricted operation, and recounted an attempt to conserve the sphincteric action of the anus.

Sir GORDON WATSON (London) believed that the treatment of this disease was still far from stabilised. Even Sir Berkeley Moynihan had told him that he had changed his mind on this subject more often than on any other surgical problem. He himself had been convinced by Mr. Miles's arguments and technique in 1909, but his own results with the abdomino-perineal operation had been very discouraging. By a process of statistical reasoning he had arrived at the conclusion that the final results of Mr. Lockhart-Mummery's operation were 1 per cent. better than those of Mr. Miles, and he consequently was now reserving the abdomino-perineal operation for cases of cancer at the recto-sigmoidal junction or above it.

Dr. MAYO stated that he had no use for any routine operation. At the Mayo Clinic all the methods were employed. He pointed out that the enlarged glands in the mesocolon were often inflammatory and not carcinomatous; a rapid diagnosis with frozen sections could be made during the course of the operation and the procedure then modified accordingly. Dr. Mayo then diverged on to an interesting general consideration of the biological problems of cancer growth.

Mr. JOCELYN SWAN (London) was a convinced adherent of Mr. Miles's method. He himself had so far been lucky enough to have had no operative mortality in 11 cases.

Mr. D. P. D. WILKIE (Edinburgh) put in a strong plea for Mr. Grey Turner's view of the great importance of retaining sphincteric control if possible. He admitted that it was difficult to criticise Mr. Miles's ideal operation, but considered that its high mortality prohibited its general use. The chief dangers of the operation he believed to be shock and sepsis, particularly septic pneumonia. He therefore suggested that the patient be immunised before operation with vaccines or be protected by inducing a leucocytic reaction.

After a few remarks from Sir HAMILTON BALLANCE and Mr. HAMILTON DRUMMOND (Newcastle-on-Tyne), the two speakers who had opened the discussion made short replies. Mr. GREY TURNER reiterated his conviction that the local removal was far more important than removal of possible distant infection. Mr. MILES admitted the absolute necessity for local removal, but was convinced that the region of upward spread was of equal importance. He was in favour of performing a preliminary cæcostomy to drain the bowel, and considered that spinal anæsthesia with gas and oxygen was the best form of anæsthetic.

The Diagnosis of Glaucoma.

The second subject, the Diagnosis of Glaucoma, was introduced by Lieutenant-Colonel R. H. ELLIOT (London). He stated that the history of the subject could be divided into three stages, marked by the names of Hippocrates, Helmholtz, who introduced the ophthalmoscope, and Legrange, who in 1906 introduced the operation of sclerectomy. The condition can be arrested if a diagnosis be made early and if the treatment be rational. The methods of diagnosis which Colonel Elliot described were: (1) Observation of the pulsation of the retinal vessels; (2) the measurement of intraocular pressure by the tonometer; and (3) the accurate investigation of limitation of the field of vision by perimetry. He referred also to examination of the light sense and to corneal measurements.

There was a short discussion, in which Mr. WALLACE HENRY (Leicester) and Mr. G. E. WHERRY (Cambridge) took part.

FRIDAY, JULY 2ND.

Nerve Suture and its Results.

The discussion on Friday, July 2nd, concerning nerve suture and its results turned chiefly on the value of nerve grafts and implantation operations; the speakers

were in substantial agreement as to the technique and results of the ordinary suture operation.

The opening speech was delivered by Sir WILLIAM THORBURN, who dwelt rather on the general principles. Beginning with the accepted fact that repair depends on the downgrowth of axons from the proximal end, he pointed out that a good anatomical result depends upon the downgrowth of a sufficient number of axons into a corresponding number of sheaths. On the other hand, a good physiological result means that the right axons must have encountered those conducting sheaths which will have taken them to the right kind of end-organs—that is to say, motor nerve fibres to motor end-organs and sensory fibres to sensory end-organs. Usually, however, there was some nerve "shunting"—that is, the downgrowth of nerve fibres to end-organs other than those with which they were originally connected. Sometimes this was done intentionally, as when the proximal part of the hypoglossal nerve was sutured to the distal part of the facial. More often this took place on a histological scale, motor fibres growing down to sensory end-organs and sensory to motor. This was partly due to the difficulty of accurate coaptation of the ends, but also to the fact that the fibres of a nerve were twisted like the strands of a rope, so that any given fibre was constantly altering its relative position in the nerve. This fact rendered futile some operations, such as that of making nerve flaps, which were practised up to 1915 but had now been discarded. It was on the face of it improbable that a nerve graft should give a good physiological result, however perfect the surgical technique. A third point of view from which results had to be considered was the economic. Often the economic result was better than either the anatomical or the physiological. He had seen, for instance, a restoration of the function of the ulnar nerve which appeared economically to be complete, though there remained an anæsthesia of the area supplied by the ulnar of which the patient was unaware. Sometimes, in spite of a good anatomical and physiological result, the economic result was bad owing to the patient's mental condition. Sometimes it was bad on account of "local ataxia"—that is to say, the function seemed to be entirely restored if the patient's attention was concentrated on the part concerned, but it quite failed if the movements were attempted in the dark or when the patient's attention was occupied by something else; this failure of the automatic function was due to the imperfect recovery of some of the afferent conducting paths.

Sir William Thorburn then gave statistics of results obtained by various operators in this and other countries. Good results seemed to be obtained in one- to two-thirds of the cases; very good results were seldom obtained, but complete failures were fairly numerous. He had no faith at all in the efficacy of grafting operations, and he pointed out that some of the bolder operations, such as nerve-stretching, transference of the nerves to new beds, and tendon transplantation, did much towards rendering grafts unnecessary. It had been found that certain general principles in results usually held good: large muscle masses producing coarse movements recovered very much better than small muscle groups controlling finer movements; function nearer the trunk was more readily restored than function at a greater distance; homogeneous nerves, such as the musculo-spiral, recovered better than nerves controlling more complicated movements.

Concerning the long time taken to obtain recovery after operation, it had been estimated that downgrowth of the axon, as determined by means of Tinell's sign, proceeded at the rate of about one millimetre per day; recovery of function in the hand therefore took much longer than recovery in the upper arm. Much of the time, however, in either case was taken up in establishing connexion of the nerve fibres with the end-organs. The work that had been done at Manchester showed that a quite perfect result was never obtained, the recovery of sensation being particularly poor. The best functional results were obtained with the musculo-spiral nerve. If a surgeon obtained good economic results in 50 per cent. of his cases he was doing well; if he obtained them in 75 per cent. he was not only doing well but was exceedingly fortunate.

Mr. PERCY SARGENT (London) said that the conditions in war wounds, which introduced so many serious complications, were entirely different from those of simple experimental cases. There were two main groups of cases—the one in which operations were done for the restoration of the conduction of nervous impulses, the other in which they were done to improve disordered function. He proposed only to consider cases in which restoration of conduction was attempted by means of resection of damaged nerve tissue and suture of cut surfaces. He believed that end-to-end suture was the only means of obtaining restoration of conduction, and that other operations need scarcely be considered. In this connexion he described a case in which a lateral anastomosis of nerves was done with anatomical failure. He stated that no useful result had ever been obtained by carrying out a graft operation. In considering the results he assumed that only the best technique had been employed—that is to say, the operations had been done without deep fixation sutures, with accurate suturing of the nerve sheath; that a gap of at least 1 mm. was always left between the ends of the nerve-fibres; that no sort of wrapping had been put round the sutured nerve; and that there had been no sepsis. He made no distinction between "primary" and "secondary" suture.

What, then, were the prospects of the operations in general? In considering this question, he had come to the conclusion that "end-results"—that is to say, final results, as distinguished from "late results"—had not yet been obtained in the majority of cases. The criteria that were used in examining cases were the condition of the nerve in conduction capacity, its electrical reactions, the power of voluntary contraction, and sensibility of various kinds. The interpretation of results was often very difficult. Sometimes very misleading cases were put forward as evidence, and in illustration of this Mr. Sargent mentioned a case of nerve-grafting, which had been reported as a success, but was found on critical examination to have been erroneously described. If sensation alone was considered, too rosy an impression might be obtained. The power of voluntary movement considered by itself was apt to be misleading, owing to the education of other muscles that sometimes took place with the production of unsuspected "trick movements." If there appeared to be a return of voluntary movement in the absence of sensory recovery these trick movements must always be suspected. Results differed widely in different nerves; they were specially good in the musculo-spiral, but very much worse in complicated nerves, such as the median and the ulnar. The muscles of the forearm recovered much better than the muscles of the hand. Sometimes the sense of position was wholly absent when the results, as regards the voluntary movements and electrical reactions, were good. It was very important that sensibility should be restored, especially in the case of the median, but the motor function of the ulnar nerve was of little importance. Late results might be bad owing to coincident psychological factors. The value of re-education might be very great, but the same degree of success must not be expected in all cases, since individual capabilities varied greatly, some men being normally incapable of any but very clumsy movements. So-called "trophic changes" were often the result of neglect or immobilisation for too long a time, and could be improved by suitable treatment. A disordered vaso-motor activity was usually due to an irritative lesion and might affect the end-result, since it was accompanied by nutritional effects.

Mr. Sargent referred, in conclusion, to the condition of continuous or chronic pain, known as causalgia. Sometimes this tended slowly to abate; in other cases no treatment was of any avail, though operations should always be tried. Causalgia was often associated with very little loss of movement or sensibility, and the trophic changes associated with it could be arrested. Alcohol injections of various strengths often relieved the condition, but if it were necessary to inject concentrated alcohol a lesion of the nerve would be produced from which there would be no recovery.

Dr. MAUD FORRESTER-BROWN (Edinburgh) gave elaborate statistics derived from an examination of the results following 643 operations done in Sir Harold Stiles's clinic. Her figures illustrated many of the points mentioned in Mr. Sargent's paper. She recorded two cases which showed complete motor recovery after nerve-graft or flap operations, and stated that very good results had been obtained from tendon transplantations. Tinell's sign was obtained in most cases, but in some was entirely absent.

Mr. COPLAND (Leeds) appeared to be in agreement on most points with Mr. Sargent. He mentioned, however, some cases of nerve-grafting in which there had been positive results. In one case in which seven inches of the median nerve had been supplied by a graft there

had been some return of sensibility in the median area; in two other cases there had been some improvement of motor function. In the technique of the operation he believed that it was of great importance to make a new bed for the nerve to lie in. He pointed out that the trick movements mentioned by Mr. Sargent may be of value from the economic point of view, and should therefore be encouraged; they also produced a better blood-supply to the limb. The most rapid recovery that he had met with had been in a case of suture of the median nerve, in which recovery was complete in nine months. The use of warmth he believed to be of great importance in after-treatment.

Mr. J. L. JOYCE (Reading) said that too much stress was being laid on the operation, which was merely an episode in the treatment. The operation of choice was end-to-end suture, but among 121 cases he had found that 22 could not be treated in this way. For these 22 he had used autogenous grafts, homologous grafts, double lateral implantation, and tendon transplantation. The results obtained compared favourably with those following end-to-end suture. Double lateral implantation, or, as he preferred to call it, a pedicled autogenous graft, gave better results than a free autogenous graft. He felt encouraged to pursue his investigations further.

Mr. ROWLEY BRISTOW (London) agreed in the main with Mr. Sargent. He drew attention to the fact that those cases which showed early signs of nerve regeneration did not necessarily give better end-results than those which were more delayed. He had seen six cases of graft operations; these were all complete failures, except one, in which the signs of recovery were probably due to the muscles having acquired a connexion with other nerves. It was possible for an isolated nerve to show in this way signs of apparent recovery. Tendon transplants had given good results.

Mr. NAUGHTON DUNN (Birmingham) said he had found that, contrary to his expectation, nerves sutured under tension recovered better than when there was no tension. This emphasised the importance of Mr. Sargent's statement that there should always be a small gap between the sutured ends, and reduced the number of cases in which a graft need be attempted. He had never seen any signs of regeneration in a grafted nerve.

Dr. L. E. SHORE (Cambridge), as a physiologist, presented a point of view which was somewhat different from that of the other speakers. He said that the exact way in which the axis-cylinders grew down was obscure, but they appeared to be under a chemiotactic influence. One axis-cylinder usually divided into a bunch of fine fibrils, which then grew out in all directions and seemed to hunt for the right track to grow into; some were successful, but many of them failed to find a sheath. He described the way in which Professor Langley first showed that nerve fibres were twisted in the nerve like the strands of a rope; this fact made him look upon any attempt to obtain anatomically accurate union as quite hopeless. There appeared to be two classes of motor nerve fibres with physiologically different functions; one was controlled by the lower brain centres and moved large muscle masses, the other by the higher centres and produced the finer movements. He believed that the economic result of operations depended largely on the degree of recovery of epicritic sensibility. He finally inquired of the surgeons whether a gap in a nerve had ever been bridged by shortening the bony skeleton of the limb.

Sir WILLIAM THORBURN, in reply to Dr. Shore, stated that shortening of the limb had been done on several occasions. The operation was particularly suitable for the upper arm.

Mr. SARGENT, in conclusion, dwelt on the difficulty experienced by most surgeons of achieving absolute honesty in the interpretation of their own results, and he applied the criticism to himself as much as to anybody else. He repeated his conviction that no true recovery after a graft operation had ever been obtained.

Chronic Suppuration in the Accessory Sinuses of the Nose.

The paper by Mr. HERBERT TILLEY (London) on this subject was not of a controversial nature; it was intended rather for the instruction of those who had not thought much about the diagnosis of sinus suppuration, which was nearly always the underlying cause of a so-called chronic nasal catarrh. Mr. Tilley discussed the origin, signs, symptoms, and the treatment of sinus suppuration, and illustrated his points with anatomical drawings and diagrams. He followed up his lecture with a demonstration of the methods of endoscopy on the afternoon of the same day.

Demonstrations.

The secretaries of the section had arranged in addition to the discussions a series of very successful demonstrations in the afternoons. On June 30th a demonstration was given by Mr. P. P. COLE and Mr. H. D. GILLIES (London) of the methods and results of plastic surgery of the face. The surgery of the war wounds of the face has been fully described in Mr. Gillies's recent monograph, and is therefore widely known. The photographs and cases shown were for the most part already familiar to those who had seen the book. A more novel feature was the exhibition of several patients who had been treated by plastic surgery for conditions met with in civil practice. These included an epithelioma of the nose, lupus of the nose, excision of the lower jaw, and cleft-palate. The results obtained were a vindication of Mr. Gillies's faith in the brilliant future which lies before plastic surgery.

On two afternoons, June 30th and July 1st, Major MEURICE SINCLAIR gave a practical demonstration of the modern methods of treating fractures. He first showed the use of a Thomas's splint as first-aid treatment for a fracture of arm or leg, and then carried out in detail the whole process of putting up a patient with a fractured femur in the Sinclair net-bed. The treatment of a series of different fractures was demonstrated and was made realistic by having the splints in position on men posing as patients.

On July 1st Mr. ARTHUR COOKE and Dr. J. W. MACNEE showed how to test prospective blood donors for their blood groups and demonstrated the whole process of blood transfusion, first by means of a Kimpton's tube and then by the citrate method, employing an open operation on the donor and Robertson's bottle as originally described.

The demonstrations were all well attended and were highly instructive.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

WEDNESDAY, JUNE 30TH.

PUERPERAL SEPSIS.

THIS section opened on June 30th, with Dr. HERBERT WILLIAMSON, as President.

Mr. VICTOR BONNEY (London), in opening the discussion on Puerperal Sepsis, said that the solution of the problem how to prevent, and how to cure, septic infection of the puerperal uterus, necessitated the correct answering of three questions: 1. What is the original source of the organisms? 2. How do they get into the uterus? 3. What is their exact situation by the time they have produced symptoms of sepsis? He was of opinion that the infection, in most cases, originated from an intrinsic source, and not from organisms conveyed from patient to patient. Speaking broadly, the occurrence of the disease at the present day is sporadic, not epidemic, a point in favour of the view he had expressed. He thought from a consideration of the facts that the antiseptic precautions in use up to the present time have been efficient in preventing infection in which septic organisms are conveyed from one patient to another. There was no doubt that organisms capable of producing puerperal sepsis commonly pre-exist in a woman, particularly in relation with the ano-perineal skin. In other words, the commonest cause of puerperal sepsis was, in his opinion, fæcal infection. Although it was difficult to apply Listerian principles in their entirety to obstetric work, he advocated the exclusion of the perineum and anus as far as possible by fixing over it a large gauze-pad soaked in some antiseptic. Practical sterilisation of the peri-anal skin may be effected by the use of a 1 per cent. solution of equal parts of crystal violet and brilliant green in half-and-half alcohol and water. A 2 per cent. solution of iodine

is also effective. Mr. Bonney considered that for all purposes except Cæsarean section, even for examination only, the lithotomy position is preferable. With regard to the modes by which organisms reach the uterus, he thought that although in a few cases they may be carried there by hands or instruments, in the large majority of instances they reach the organ by natural currents. The speaker observed that, as a rule, puerperal sepsis is not associated with the retention of gross fragments of placental tissue in the uterus. Furthermore, the organisms are situated *in* the uterine wall almost from the beginning of the infection, and soon extend beyond it viâ the veins or lymphatics.

The problem of treatment of puerperal sepsis is, he said, very difficult. Immediate sterilisation by flavine or Milton's solution, where sepsis is suspected, is probably valuable in preventing extension. The common practice, however, of giving an intra-uterine douche with the idea of washing away and killing the organisms in the uterus is senseless and harmful. Mr. Bonney was not in favour of scraping the uterus, unless it could be carried out quite early and be followed by the insertion of irrigating tubes in the Carrel-Dakin manner. Under such conditions he thought that it would be the means of arresting the infection in many cases. It must be done if at all within 12 hours of the temperature rising. As to the value of vaccines and antitoxic serums in the treatment of puerperal sepsis he was frankly pessimistic. He was, however, favourably impressed with the results obtained by ligaturing or excising the ovarian vessels and lymphatics.

Surgical Treatment of Puerperal Sepsis.

Mr. BECKWITH WHITEHOUSE (Birmingham), in an opening paper on the Surgical Treatment of Puerperal Sepsis, observed that a study of the statistical tables of the Registrar-General showed that the risks of sepsis to the parturient woman were very real. There could be little doubt from the results published that the existing everyday methods of treatment were unsatisfactory, and that in this respect the science of obstetrics had not advanced appreciably within recent years. He then proceeded to contrast the pathological conditions obtaining in a septic puerperal uterus with those in a deep-infected muscular shell wound. The similarity was very close, both as regards the nature of the infecting organisms and the position of the same. Mr. Whitehouse traced the evolution of treatment of war wounds and referred to the very great advance that was made by the institution of the Carrel-Dakin method. By applying Carrel's continuous irrigation to the septic uterus from the earliest stage possible he was of opinion that the present mortality rate might be lowered. He had within the past two years treated 15 cases of very severe sepsis by this method with only one death. With regard to curetting the septic uterus, there are undoubtedly grave risks both of extending the infection and also of perforating the soft tissues. He had found it a useful asset to the Carrel-Dakin method, but sounded a note of warning with regard to its general adoption and use by irresponsible individuals. It should not be employed unless *continuous* irrigation with hypochlorite solution was instituted at the same sitting. The speaker then referred to the possibilities of intravenous medication in those cases of puerperal sepsis where organisms have reached the blood stream. He had recently with good effect been employing a solution of flavine, 1–1000 in normal saline, intravenously in cases of puerperal septicæmia and pyæmia. Flavine has the great advantage for intravenous injection that it is a non-protoplasmic poison and has no effect upon the red or white corpuscles.

Intravenous Protein Therapy in Puerperal Septicæmia.

Dr. A. E. GOW (London) spoke in support of intravenous protein therapy in puerperal septicæmia. He said that with the introduction of intravenous injection of "peptone" as an accessory to sensitised vaccine a considerable step forward in the treatment of pyogenic septicæmia had been made. Of the various preparations of peptone on the market Witte's is the best for the purpose. Ten grammes are dissolved in 100 c.cm. of water containing a little sodium bicarbonate. The solution is boiled and filtered, and from 8 to 10 c.cm. are given intravenously as the first dose. The injection is made slowly, Nolf's technique being employed. The occurrence of a rigor following the injection is an excellent sign, and in the speaker's experience often marked the turning point of the disease. Peptone treatment is a useful accessory to other methods, but Dr. Gow did not make any extravagant claim to its success in all cases. As regards autogenous vaccines, the causal organism, in most cases the *Streptococcus pyogenes*, can be isolated more quickly from an intra-uterine swab than from the blood stream.

Serums and Vaccines in Puerperal Infection.

Dr. LEITH MURRAY (Liverpool) continued the discussion with a paper upon the Value of Serums and Vaccines in the Treatment of Puerperal Infection. He was of opinion from a consideration of the literature that the employment of serums or vaccines is not attended by results so satisfactory as to exclude the use of other forms of inoculation therapy. He urged that steps be taken early and not late in the course of a case of septicæmia when probably nothing could save the patient. He did not agree with the customary division of puerperal infection into toxæmic and septicæmic groups. The distinction is merely between a grave and a very grave condition. In the interval when diagnosis by blood culture is being made, he thought that it is not only legitimate but highly advisable to give antistreptococcus serum. With regard to vaccine treatment Dr. Leith Murray was of opinion that a stock vaccine is never advisable in acute cases. Autogenous vaccines, however, especially when combined with serum, appear to be of distinct service. The best results are obtained in the subacute cases. In conclusion, he expressed the opinion that the patient's best interests are not served by the usual present-day practice of treating cases of puerperal septicæmia in ordinary fever hospitals. Public health authorities must be informed that an expert on the treatment of puerperal fever cannot be created in six months and that the services of an officer specially trained for this work should be obtained.

Discussion.

Mr. S. L. GRAHAM (Birmingham) referred to the work at the Women's Hospital, Birminham, where a special ward for the treatment of puerperal sepsis was established. From an experience of 800 cases with a mortality of 143 he was frankly pessimistic about the present methods of treatment. He had tried vaccine and serum therapy for two years and had now given it up. His present treatment consisted essentially of good nursing with intra-uterine douching. The majority of the patients in the puerperal ward slept out of doors.

Dr. EARDLEY HOLLAND (London) observed that treatment is certainly very chaotic as shown by the diversity of methods described. He thought that one of the most important points in the discussion was the autogenous method of origin. He was in complete agreement with Mr. Bonney's suggestion, and for this reason advocated the abolition of vaginal examination in favour of rectal examination in obstetric work. For ten years he had not made a vaginal examination except in complicated cases.

Dr. AMAND ROUTH (London) observed that no definite proof had been brought forward that either *B. coli* or the *Streptococcus fæcalis* were always the causal germs, and for this reason he was not prepared to agree with Mr. Bonney that puerperal infection was usually of autogenous origin. With regard to treatment, he thought that intra-uterine douching was of great importance immediately after delivery of the placenta in all cases of complicated labour.

Dr. FRANCES IVENS (Liverpool) called attention to the preparation of a patient before labour commenced. She was of opinion that if the same precautions were taken as before a surgical operation the incidence of puerperal infection would be much reduced. She also advocated the employment of serum therapy at an early stage of the disease.

Dr. J. P. HEDLEY (London) said that one of the great difficulties in dealing with puerperal infection was to know which patients were going to get well and which were going to die. It was also important, amongst the diversity of methods advocated, not to kill the patient with treatment! He was impressed with the results of the Carrel-Dakin method described by Mr. Whitehouse, and he intended to apply the same when the occasion arose.

Dr. A. LAPTHORN SMITH (London) felt that a great deal of the mortality at present attached to puerperal infection could be avoided if adequate surgical precautions were taken before labour commenced. He drew attention to the importance of adequate drainage of the uterus and stated that he did not believe in curetting a septic uterus.

Dr. R. C. BUIST (Dundee) observed that in arguing from results from any new methods two facts must be remembered. One was the natural response of the patient to treatment, whatever it may be. The other was the incorrectness of deducing principles without having recourse to very long lists of cases.

Dr. F. DEIGHTON (Cambridge) spoke in support of the remarks of Dr. Ivens and Dr. Lapthorn Smith. One of the difficulties of adequate surgical preparation before obstetric work was the fact that the principle was not generally recognised.

Dr. R. J. JOHNSTONE (Belfast) called attention to the important difference that existed between puerperal sepsis of the uterus and septic infection of adjacent parts. As regards the origin of infection he was in accord with the views expressed by Mr. Bonney, and had held this opinion for ten years. He was not so pessimistic about treatment as some speakers appeared to be, and thought that reasonably good results could be expected if proper care was adopted. He did not curette the uterus as a routine but only when shreds of sloughing endometrium were being discharged.

Dr. R. J. ROWLETTE (Dublin) spoke in favour of vaccine therapy, and especially of autogenous vaccines. If it was impossible to isolate the infecting germ from the blood-stream a uterine swab should be taken. He advocated a small initial dosage, the first dose being not greater that 5 millions.

Dr. F. EDGE (Birmingham) was of opinion that vaginal douching, except in hospitals, should be abolished as a routine treatment of puerperal infection, and advocated thorough examination under an anæsthetic in all bad cases.

Dr. PARRY referred to the difficulty of treating a confinement as a surgical operation in general practice, and thought that nearly all cases of puerperal fever were due to infection by the doctor or nurse in attendance.

Dr. PECHÈRE (Brussels) was in complete agreement with what various speakers had said about prophylaxis. In Belgium puerperal sepsis was very common in the larger towns, although it was not frequent in the maternity clinics, where proper precautions were taken. He spoke in favour of the use of peptone and serum therapy.

The PRESIDENT, in closing the discussion, drew attention to the need for more detailed examination of post-mortem material. He also thought that obstetricians in the various large centres throughout the country should periodically meet and discuss results in order to further any special line of inquiry or treatment. With regard to Mr. Bonney's theory of autogenous infection, he did not consider that the acceptance of the same relieved the practitioner one iota of his personal responsibility. As to Mr. Whitehouse's treatment by the Carrel-Dakin method, he thought that the author intended that such treatment should be carried out in institutions. There were dangers in indiscriminate curetting, and although it had undoubtedly its place in treatment, the indications at present were not such as to warrant its general adoption. He fully concurred with Dr. Leith Murray's suggestion that the treatment of puerperal fever should be severed from the general fever hospital, and Birmingham had led the way in this respect.

SECTION OF ELECTRO-THERAPEUTICS.

FRIDAY, JULY 2ND.

Presidential Address.

Dr. A. E. BARCLAY (Manchester), in his presidential address to the section, referred to the granting, by the the University of Cambridge, of a diploma in medical radiology and electrology, and the establishment of a complete course of study in these subjects in preparation for it. The granting of this diploma opened a new era in the history of radiology and electrology, and a higher standard than has been possible in the past will be attained in the future. The need for a full course of instruction and a diploma was greater than had been realised. An entry of nearly 30 had been obtained for the first examination in July, 1920, and more than 12 had commenced the second course of training for the next examination in December, 1920.

Mr. H. S. SOUTTAR (London) opened a discussion on

The Diagnosis and Treatment by Electrical Methods of Paralysis Due to Nerve Injuries.

Electrical methods were of special value in affording an early indication of recovery after injury. A change in the nature of the response of the muscles to galvanic current, from slow to quick, was a sign that recovery would take place, and this change could be noted long before the return of faradic excitability. Regarding electrical treatment, the opener held the opinion that electrical currents were of much value, mainly on account of their power to cause the paralysed muscles to contract and do work. Faradic currents were also of value because they caused normal muscles in the same limb to contract, thereby helping the circulation in the limb, protecting the tendons from adhesions, and keeping the joints free.

Dr. W. J. TURRELL (Oxford) attached much importance to the use of electrical methods for diagnosis. The faradic and galvanic currents were of most value for this purpose, and could provide information on the condition of the nerve and the degree of degeneration of the muscle.

Dr. F. HERNAMAN-JOHNSON (London) said that the condenser method of testing would give an early indication of the arrival of the regenerating motor nerve at the muscle. He believed that, in treatment, muscles should not be made to contract until some voluntary power had been regained.

Dr. NOEL BURKE (London) spoke of the electrical testing of motor nerves exposed during surgical operation and of the information that could be obtained by this process on the physiological continuity of nerve trunks in the region of injury.

Dr. C. WORSTER-DROUGHT (London) described the condenser method of testing reactions. In his experience with some 2000 cases, this method provided accurate indications whether the nerve injury was sufficiently severe to demand surgical treatment. After nerve suture and the expiration of a period of delay, testing by condenser discharges decided whether recovery was taking place, before return of voluntary power.

Dr. HOWARD HUMPHRIS (London) mentioned the use of the melted paraffin-wax bath in preparation for subsequent treatment. The reddened, moist, and slightly greasy condition of the skin rendered the latter ideal for massage.

A paper by Dr. ROBERT KNOX (London) on

Radiography of Tumours of the Chest

was read by Dr. SHILLINGTON SCALES owing to the absence of the author due to illness. The paper dealt with the tumours found in the chest wall, in the mediastinum, and in the lungs. The X ray appearance of these tumours was described and their differential diagnosis was fully considered. The paper was illustrated by several lantern slides. In the discussion that followed, Dr. IRONSIDE BRUCE (London), Dr. H. BLACK (Birmingham), Dr. HOPE FOWLER (Edinburgh), Dr. FLORENCE STONEY (Bournemouth), and Dr. J. HALL-EDWARDS (Birmingham) took part.

Dr. S. GILBERT SCOTT (London) read a paper on

The Diagnostic Value of the Renal Outline.

After referring to its appearance in normal kidneys, kidneys of abnormal size, and kidneys with abnormal

shadows, he described his method of determining the relation of abnormal shadows to the kidneys by means of the respiratory excursion of the kidney and the presence or absence of movement of the abnormal shadow. If the latter moved to the same extent and in the same direction as the renal shadow the abnormal body must be connected to the kidney.

Professor J. GOODWIN TOMKINSON (Glasgow) read a paper on

X Ray Therapy in Oriental Sore.

Three cases were treated. One of these, which had received ionisation earlier without apparent benefit, was cured by nine weekly applications of X rays filtered through ½ mm. aluminium. Each dose was a half sabouraud. The second case was also cured. The third was still under treatment and was improving.

EXHIBITION OF SURGICAL AND ELECTRICAL APPLIANCES, DRUGS, AND FOODS.

I. *Surgical Apparatus, including Electrical Appliances and Scientific Instruments—Continued from p. 96.*

A review of Division I. can be well completed by a reference to four exhibits of particular interest. The Sanborn Company, of Boston, Massachusetts, exhibited the Benedict Basal Metabolism Apparatus which has recently been brought into use to determine the oxygen consumption of patients in the treatment of goitre, hyperthyroidism, anæmia, diabetes, and so forth. This ingenious apparatus, designed by Dr. F. G. Benedict of the Carnegie Nutrition Laboratory, measures the inspired and expired air, so that the amount of oxygen entering the lungs and the amount leaving can be determined, the difference representing that used in the body, a "respiratory quotient" being thus established. The determination needs no laboratory analysis, the oxygen consumed being shown by a direct reading from the scale of the apparatus. Another instrument shown here was a combination blood-pressure outfit and stethoscope for use in surgical operations, giving advantages to both operator and anæsthetist. Mr. W. H. Pettifor, of 11, Victoria-street, London, S.W., presented a range of "electrical aids for the deaf" of various pitches, and possessing different wave-form characteristics. This was described as a special form of telephone made up of three parts, the receiver or ear-piece, the transmitter or microphone, and a small dry battery. A test instrument was also shown, enabling a prescription to be written to give the most suitable pitch, sound-wave form, and volume of sound for each individual case. The test set enables a combination of 90 different instruments to be prescribed. This suggestion of standardisation attracted considerable interest. An apparatus generating oxygen at will was exhibited by the Hydrogen, Oxygen, and Plant Company, Ltd., of 1, Albemarle-street, Piccadilly, London, W., the gas being generated from simply the contact of "oxylithe" with water. This substance is stated to be prepared by an electro-chemical process from sodium peroxide. There is complete control over the apparatus as to the quantity of oxygen evolved. The suggestion is that the possession of this apparatus by the physician makes him independent of a cylinder supply. A related gas, of course, is ozone, the production of which was illustrated in the exhibit of Ozonair, Ltd., of 96, Victoria-street, Westminster, London, S.W. There were here shown the latest designs of apparatus producing ozone from the air for, amongst other things, the treatment of respiratory diseases, for purifying the air of the sick room, for the sterilisation of water, and for the bleaching of coloured materials.

II. *Drugs, including Antiseptics.*

Colloids, synthetics, organic arsenical preparations, and glandular extracts seemed to occupy most of the attention of both visitor and exhibitor, and the display was quite comprehensive in character, attracting general interest.

The disclosures of the ultra-microscope formed a real scientific show, and facilities were given for an inspection of this with objects in view at the stall of British Colloids, Ltd., The Crookes Laboratories, 22, Chenies-street, Tottenham Court-road, London, W.C. When correctly staged the Brownian movement and the orbit of the ultra-microscopic particles were fascinating to watch, reminding the observer of the phenomenon of the spinthariscope (radium bombardment). A well-defined series of colloidal preparations was shown, including metals, non-metals, and one alkaloid—quinine. As is correctly stated, the essentials are not new drugs; they are simply familiar medicaments in a new form—a form in which their therapeutic efficiency is remarkably increased, while objectionable side issues are to a large extent avoided. Under the term "oscols" Messrs. Oppenheimer, Son, and Co., Ltd., of 179, Queen Victoria-street, London, E.C. (who claim to be the introducers of the advantages of colloidal medication), exhibited a series of metallic and non-metallic colloids of a permanent character, their condition being controlled by careful laboratory examination. The exhibit included examples of palatinoids, the preserving power of these capsules being noteworthy. Phosphorus, ether, organic extracts are thus kept unimpaired.

The progress achieved in the chemical manufacture of British-made synthetics and drugs found significant illustration in the exhibit of Messrs. Boot's Pure Drug Co., of Nottingham, where was presented a series of admirable specimens, including aceto-salicylic acid, acetanilide, saccharin, hexamine, butyl, chloral, orthoform, and certain alkaloids and glucosides. The antiseptics shown included mercuric potassium iodide and chloramine-T. All branches of pharmacology were well represented at the artistic exhibit of Messrs. Burroughs, Wellcome, and Co., of Snow Hill Buildings, London, E.C. Notable amongst the things shown guaranteeing purity, accuracy, and reliability were the arsenic synthetics replacing effectively German salvarsan and neo-salvarsan. Organo-therapeutic preparations formed a feature of this exhibit. In addition to apparatus for oxygen inhalation with or without alcohol, and an interesting laboratory device for the determination of nitrogen in compressed oxygen, and of carbon monoxide in gas mixtures, Messrs. Reynolds and Branson, of Leeds, exhibited a number of pharmaceutical preparations made on skilled lines. Such were their series of elixirs, gargles, and concentrated tinctures. General interest was shown in the exhibit of bacterial vaccines at the stall of Messrs. Parke, Davis, and Co., of 50, Beak-street, Regent-street, London, W., produced in the inoculation department of St. Mary's Hospital under the supervision of Sir Almroth Wright. The series included the pneumonia phylacogen and hormone preparations, and glandular substances. The correct choice of a liquid paraffin for medicinal purposes was illustrated by the Wm. Browning Co., Ltd., of Albert Works, Park-street, London, N.W. Apart from the pure oil itself with an approved viscosity a new product was shown called "semprolax," which by a special process renders liquid paraffin palatable, free from oily taste and appearance, and yet containing, according to claim, 80 per cent. of the intestinal lubricant. Messrs. C. J. Hewlett and Son, of 35–42, Charlotte-street, London, E.C., were to the front with their well-known original preparations, including the mist. pepsinæ co. c. bismutho, and the physiologically standardised extract of ergot, both of which have stood the test of clinical experience for a good many years. The art of reducing fluids to fine spray was well illustrated at the stall of Mr. Frank A. Rogers, of 327, Oxford-street, London, W., where was shown a profusion of atomisers and spray apparatus adapted for close and effective application to nose and throat of various medicaments, whether of an oily nature or merely aqueous solutions.

Drug standardisation was amply exemplified in the exhibit of the Hoffmann-La Roche Chemical Works, Ltd., of 7 and 8, Idol-lane, London, E.C. Specimens were exhibited of digalen, a sterile solution of the active principle of the fresh leaves of digitalis showing a uniformity of composition, and therefore therapeutic activity. In addition were exhibited specimens of omnopon, a fluid presenting the total alkaloids of opium in a soluble form and suitable for injection. A stable combination of omnopon with scopolamine is also prepared.

(*To be continued.*)

THE LANCET.

LONDON: SATURDAY, JULY 17, 1920.

Health in the Last Year of War: the Influenza Figures.

THE year 1918 was, for the bulk of the inhabitants of this island, the most strenuous and the most anxious time within human memory. It opened with a period of unexampled depression during which the manhood of the country was fighting against an ever-advancing army in the field, while the women and children of the country were carrying on bravely at home in circumstances bordering more and more on actual privation. True, the tide soon began to turn, but it was not until late in the year that the strain was relaxed. Before this occurred the country was visited by a scourge of epidemic disease without parallel since the cholera outbreak of 1849. Anyone conversant with the effect of such outward conditions on the physical health of the community must have prophesied a rate of mortality higher, much higher indeed, than that of quiet and peaceful times. Sir BERNARD MALLET, whose report we summarise on another page, nevertheless declares the year to have been one of extraordinary healthiness. The civilian deaths during the year numbered 587,828, making a death-rate of only 17·1 per 1000. Of these deaths only 10·5 per cent. were those of infants under 12 months of age. Enteric fevers were so minished as to have lost their significance as a cause of death. Cancer showed an appreciable decrease on the previous year's record. The first impression produced on the reader by the Registrar-General's figures is one almost of incredulity, attended with a growing thankfulness to those who had the ordering of public hygiene and whose faithful work was rewarded in so dramatic a manner. The intensive industry and compulsory temperance of the population were certainly contributory factors.

The influenza epidemic did not, of course, run out during the year, and this fact has induced the Registrar-General to take the exceptional course of issuing a separate report[1] which has only just appeared. The main features of the epidemic have long been known, but this panoramic survey, while confirming many of the conclusions reached from partial views of the outbreak, puts some in a truer perspective and modifies or disproves others. The deadly character of the disease has never been brought out so clearly as in the table showing that in the fourth quarter of the year 1918 the mortality among women of 25 to 30 was 540 times greater than the average for the same quarter of the four preceding years. On the other hand, we are informed, contrary to usual belief, that pregnancy did not add appreciably to the risk of death, and in the circumstances it couid indeed hardly have been expected to. The report brings out the great similarity in type of the disease throughout the whole of the country. Heart disease, for instance, was uniformly recorded as a complication much more frequent in the first wave than in the second. Bronchitis, too, became less common in all areas as time went on. In two important particulars the epidemic differed materially from that recorded by Dr. WILLIAM FARR. In 1847 twice as many people (in proportion to population) died in the more insalubrious parts of London as in the less unhealthy. The pandemic of 1918–19 was no respecter of persons either in regard to health or wealth. In the first wave it is true that the wealthier parts of London and the healthier boroughs were let off lightly, but in the second wave Dives shared the fate of Lazarus. In 1847 Dr. FARR noted that influenza especially attacked persons labouring under other zymotic diseases; in 1918–19 there was no evidence of any such association.

It looks, indeed, as though the overwhelming intensity of the infection over-rode any initial variations due to environment or local resistance. The first wave, which spent itself by the end of July, hit the towns much more severely than the rural areas, and was at its worst in East Lancashire and West Yorkshire. It was followed by an interval of four weeks in which the mortality stood at the modest figure of fourfold its normal rate. The second wave respected no region, however remote and isolated, and levelled out all claims of relative immunity. Places like Jarrow, which practically escaped the first bout, suffered with special severity from the second. In the north, when the second wave seemed to be abating, it returned again with a fresh lease of virulence, due apparently to a reinfection from the south. The intermission of mortality between the second and third waves was neither so prolonged nor so complete as that between the first and second. Late involvement seemed to confer a certain amount of protection in the first wave, but no advantage accrued in this respect in the other waves. Of local variations in intensity the most that can be said is that on the whole the county areas were progressively less severely affected as one proceeds south. Who desires to study in detail the record of his own area will find material for so doing in this amazingly complete survey. The epidemiologist will be able to draw from it lessons of value for the future, but not without prolonged study.

[1] Cmd. 700, H.M. Stationery Office, price 1s. 6d.

Consultation Fees.

WHATEVER changes may have occurred in the methods and habits of consulting physicians and surgeons or in the circumstances of the patients sent to them for advice, their fees have remained unchanged for a generation or more as far, that is, as the discreet cloud of mystery that surrounds consultation fees admits of clear comparison. We know that the traditional two guinea fee, when it represented a vastly greater purchasing power than it now does, was often reduced in the case of the patient whose financial handicap was indicated to the consultant by the family doctor who sent him. But we imagine that the handicapping was always to the disadvantage of the consultant, who drew no larger fee whatever the affluence of patients who visited him. In contrast therewith a sliding scale of fees has always been in use by the general practitioner of medicine, because his knowledge of the financial standing of his various patients was generally no less intimate than that of their physical frailties. Naturally, this cannot be the case to the same extent in consulting practice, and may account for the anomaly of the fixed fee. It is an arrangement which, to speak frankly, has worked none too well in the past, and with the redistribution of wealth which has recently taken place is likely to work still less well in the future. We called attention a fortnight ago to an experiment in graduating consultation fees initiated at the suggestion of a

London business house. The scheme contemplated for a person with an income of £350 or under a reduction of the operation fee to 10 per cent. of the normal, and of the fee for consultation and treatment to 25 per cent. The rest of the scale is given in brief as follows :—

Adjusted income.	(a)	(b)	Adjusted income.	(a)	(b)
Under £350 ...	10 %	25 %	Under £700 ...	30 %	45 %
,, £400 ...	12½ ,,	27½ ,,	,, £800 ...	40 ,,	50 ,,
,, £450 ...	15 ,,	30 ,,	,, £900 ...	45 ,,	55 ,,
,, £500 ...	20 ,,	35 ,,	,, £1000 ...	50 ,,	66⅔ ,,
,, £600 ...	25 ,,	40 ,,	,, £1500 ...	60 ,,	Full.

The "adjusted income" shown in the first column includes any private means as well as the salary of the employee, and is to be ascertained by deducting one-fifth of the total income on account of a wife, and one-tenth on account of each child, or other dependent member of the household. Cols. (*a*) and (*b*) represent the proportion of fees payable for (*a*) operations; (*b*) consultations, treatment, or nursing home fees. A minimum of 1 guinea is fixed for a single visit.

It will be seen that the full consultation fee will not be paid until the patient has an income of more than £1000 a year, and the full operation fee not until his income exceeds £1500 a year. Seeing that a series of physicians, surgeons, and specialists of repute have accepted these conditions it is evident that some, at all events, of those in consulting practice in London are prepared to admit that their normal fee is in the nature of a maximum, the important question being, having regard to the modesty of the maximum, for how many patients is it applicable, and, in particular, for how many is it too low. The scale outlined above, be it noted, only defines the proportion of the fee payable without fixing its actual amount. It is open, therefore, for any physician or surgeon accepting such an arrangement to fix the norm at any level which he chooses; and obviously if he is to accept the reduced fee in a large proportion of the cases in which he previously received the full one it would be only fair for the consultant, especially for the consultant physician, to place his norm at a higher level than that of the now usual 2, 3, or 5 guineas, and in so doing obtain from the affluent a proper equivalent for his skilled advice.

In the scheme we have quoted the employer makes inquiry into the patient's income, including any private means which he may possess. Inquisition of this sort would, we think, be found to be resented except as applied impersonally to the staff of large business firms. In other cases it seems to us that the income-tax return might be used, instead of, for example, any employer's voucher. The information given by a patient to his medical attendant is already of so confidential a nature that he need hardly hesitate to disclose to him also the amount of his net income. This information would still remain between the surveyor, the doctor, and the patient, and the patient would not be taking his employer into his confidence. Such a system would enable the principle of graduating consulting fees to be carried out on a larger scale than that at present suggested.

Outdoor Medical Officers of the Ministry of Health.

THE invitation of the Ministry of Health to candidates for appointments upon a projected outdoor staff was accompanied at the time that it was made by the information that a committee would consider the applications and make recommendations to Dr. ADDISON thereon. As we announced at the time, this committee included medical men of high standing, representing different parts of the country, the Civil Service Commissioners, and the Ministry of Health, but for obvious reasons it was not thought convenient to announce the personnel of the body until its delicate work of selection had actually been performed. In another column of this issue of THE LANCET there will be found the names and qualifications of the Selection Committee, its report to the Ministry of Health upon the applications received for the appointments under the Ministry, and the names of the medical men whose applications for engagement have been successful. These appointments embody the conception of medical referees, set out by the British Medical Association. Their holders will have functions which are primarily administrative, but the early duties may be largely clinical, inasmuch as the officers will take the place, as official referees, of the consultants who have been acting hitherto in this capacity under private arrangement with the Approved Societies. The new officers will act as expert advisers for the authority responsible for the clinical service, and will probably have supervisory power in the administration of the service.

It will be seen, therefore, that the appointments form an important link in the chain of medical organisation, bringing the local health authorities into touch with the hospital and special services that may be provided in the future. This is of particular interest because with all the vast opportunities for organised development which underlie the activities of the new Ministry of Health, there is an inevitable risk that some of the plans of reform, so far from simplifying medical practice, may actually complicate it by the erection of various forms of administration and supervision. As a matter of fact, the new outdoor staff of the Ministry of Health should fit in well with the development of Primary Health Centres, which is the first great principle of the Report of the Consultative Council of Medical and Allied Services. At a meeting of the Bath and Bristol Branch of the British Medical Association held in Bristol last week Lord DAWSON expounded this Report, and had the advantage of doing so in a county where regulations had been proposed for medical practice which in some of their essential features were an actual forecast of the recommendations of the Consultative Council. For Dr. MIDDLETON MARTIN, medical officer of health of the county of Gloucester, with the assistance of the practitioners in the district, has devised a scheme under which general practitioners could be brought into relation with primary or cottage hospitals, staffed by themselves, which could be connected with the secondary hospitals in the larger towns, that is with the great voluntary institutions as we know them. The Gloucestershire scheme has not reached the stage of fruition, but it will now develop with the added prestige of forming a pattern to the country of the method by which the general practitioner can at last use his powers for good in a proper environment. And while the Report of the Consultative Council proposes to bring into connexion the general practitioner's ordinary work, centring around primary centres, with the work of consultants and teachers, as represented by the activities of the voluntary hospitals, the new appointments by the Ministry of Health of outdoor medical officers should bring the local health authorities into touch with all forms of domiciliary and institutional medical service.

Annotations.

"Ne quid nimis."

TYPHUS IN POLAND.

THE appeal from the committee seeking funds for the help of Poland is reinforced by such information as is received, but it has been difficult heretofore to get out of Poland a full account of the typhus epidemic. Dr. Norman White's public lecture on Thursday evening, under the auspices of the Chadwick trustees, will have contributed greatly to public enlightenment. In the *Military Surgeon* (Washington, D.C., U.S.A.) for June there is a report by Colonel Harry L. Gilchrist, Medical Corps, U.S. Army, dated in January, 1920, which tells how appalling the situation was then, and from it we quote below. Colonel Gilchrist was sent to Poland in May, 1919, by the President as head of the American Typhus Fever Expedition, detailed generously from the United States Army Medical Corps.[1] The expedition works under the Polish Minister of Health. Typhus, says Colonel Gilchrist, has been epidemic in Poland for four years (1920 will make the fifth); it became far more serious after the armistice. It is always being freshly imported by returned prisoners and refugees from Russia and the Ukraine, of whom two and a half millions entered Poland in 1919, less than half of them Poles. In Russia and the Ukraine the epidemic originates. People there die by thousands, their bodies piled in great heaps awaiting burial. Poland realises their condition, and out of charity does not refuse entrance to these pitiful refugees. She establishes quarantine stations, but people come in such crowds they cannot be handled, and so the epidemic is spread. Bolshevik commanders, it is stated, release typhus sufferers from Russia in trains near the frontier, so that they must drift into Poland. As a rule Denikin's garrisons left behind were garrisons of typhus fever. Galicia is also suffering. Whole towns are crippled, schools and business suspended. In North-East Poland American inspectors report disease infecting nearly every home. Poland has been so ravaged by armies that destitution is widespread. Mostly people live on potatoes, beets, and other vegetables; sometimes they have no fuel to cook them. Yet Poland is making efforts to deal with typhus, and is doing its best even to train doctors and nurses, but it lacks financial resources and sanitary supplies for this overwhelming emergency. Major Willis Baker, one of Colonel Gilchrist's inspectors, wrote from his station:—

"843 beds in hospital, mostly typhus, but also tuberculosis, dysentery, relapsing fever, and small-pox. An August convoy of 200 had 30 cases of typhus on arrival, 150 more cases developed in a few days. The staff remained uninfected till December, when 400 prisoners were passing through daily, of whom 80 per cent. were infected, and disease then broke out among officers and workers, and of eight doctors seven got typhus. Patients are lying on the floor or on board platforms. There are no beds. There is no bedding, but straw and paper blankets; no hospital clothing, no medicines, no instruments, no hospital linen or equipment, almost no lavatories or latrines. The whole place is foul and terrible. A great shortage of eating utensils; 800 simple pots to feed 800 patients, who are in the most extreme misery."

Lieutenant-Colonel Register, Medical Corps, U.S. Army, died of typhus in January last, but, knowing well their risks, the whole American expedition volunteered for another year of service. Colonel Gilchrist sums up the needs of Poland as: soap in thousands of tons, hospital linen and underclothing in hundreds of thousands of sets, hospital equipment for thousands and thousands of beds; and declares that unless checked "this epidemic will threaten the whole of Europe. The situation at present is getting beyond control." We commend to our readers the appeal we published last week from the committee begging them to tell their friends how extreme is Poland's need.

[1] THE LANCET, March 20th, 1920, p. 671.

THE TOXIC FACTOR IN MIGRAINE.

As in the case of many functional diseases, the pathology of migraine is not definitely known and is the subject of controversy. A reflex neurosis arising from irritation of organs such as the stomach, uterus, or eyes, a vaso-motor disturbance, and a toxæmia (of the nature of which there is dispute) are some of the hypotheses which jostle one another. In the *Presse Médicale* MM. Ph. Pagniez and A. Nast have brought forward strong evidence in favour of the toxic nature of the condition. Their paper has the merit of producing experimental evidence in place of the speculations with which eminent writers have for a generation regaled the profession. They point out that in the great majority of cases of migraine the crisis cannot be provoked at will, but the majority of patients know conditions which favour its appearance. In some it is some article of diet, a glass of wine or a liqueur; in others muscular fatigue; in others emotions or departure from regular habits, such as times of meals, going to bed, or rising. But when the patient exposes himself to the cause of the attacks the crisis usually does not occur immediately, but after a period of several hours or even of more than a day. There is therefore a period of elaboration in the organism before the crisis. Another important fact is that many patients notice that for days after an attack they can take whatever they like with impunity. These facts appear to have a humoral basis, as the following case shows. A strong, intelligent man had been migrainous since childhood. He received considerable benefit from small doses of peptone before meals, but when the treatment had been stopped for a certain time the crises reappeared. Several causes would start an attack. Among these was the taking of chocolate, particularly milk chocolate, but when he took a cachet of peptone before meals he could commit with impunity imprudences which he usually carefully avoided. His case was investigated experimentally. Half a gramme of peptone was given before meals. Experimental meals consisting of bread, milk, and chocolate, in quantities up to 100 g., were given, without preliminary administration of peptone. Digestion leucocytosis followed and migraine did not occur. Then the peptone was stopped, and two days later he was given a meal containing 60 g. of chocolate with the same result. But an experimental meal, given nine days after stopping the peptone, was not followed by leucocytosis but by leucopenia (3700) and an attack of migraine. It is noteworthy that the prophylactic treatment conferred an immunity which lasted several days after its discontinuance. Similarly, an attack of migraine is followed by a period of immunity. MM. Pagniez and Nast conclude that the essence of the disease is some humoral modification which renders the subject liable to an attack—a sort of temporary anaphylaxis. Upon the rapidity with which this state is reconstituted after an attack depends the degree of the disease. The exact nature of the humoral modification is not known. It is not surprising that if the crisis can be provoked by certain articles of diet, the action of which is comparable to anaphylaxis, the disease may be cured or suspended by a therapy of "alimentary anti-anaphylaxis."

THE SUPPLY OF SPIRITS IN HOSPITALS.

IT is interesting to note that during the Committee stage of the Finance Bill, which was taken last week, Clause 2, which provided for the continuation of the increased medicine duties was agreed to, as also was Clause 3 dealing with increased duties on potable spirits. On reaching Clause 4, however, which refers to the use of spirits in medicinal preparations or for scientific purposes, a discussion arose on the question of allowing a rebate on all spirits used in hospitals on prescription. The point at issue was whether hospitals should be permitted to obtain potable spirits free of duty. One argument put forward in favour of this concession was that during the war military hospitals, guided by medical representation, obtained spirits free of this tax. When the spirit is mixed with drugs there is a partial

abatement allowed, but in the case of potable spirits there is no such abatement. The Financial Secretary of the Treasury opposed the suggestion on the ground that the greatest possible care was required not to leave any holes by which evasion of the duty on wines and spirits was possible. If such a concession were made, he maintained, the Board of Customs would be entirely in the hands of the staffs of hospitals throughout the kingdom, and it would be a very great responsibility to throw on them. The use of potable spirits in our hospitals, according to statistics, appears to have decreased considerably, and so the fact that the suggestion of a rebate on such supplies was rejected may not prove to be a very serious economic matter.

SCLERODERMIA AND PITUITRISM.

IN 1917 Alibert described for the first time under the name of scleremia a morbid syndrome characterised by cutaneous sclerosis, afterwards re-named sclerodermia. Although its association with other affections, such as myxœdema, exophthalmic goitre, and the frequent occurrence of pigmentation have suggested a theory of a plurality of sclerodermic forms, little has been achieved in lifting the veil which surrounds its true pathogenesis. With the prevalence of new views regarding the importance of the endocrine glands, theories of the pathogenesis of sclerodermia naturally gravitated towards these fresh ideas, and invoked as causative agent changes in the thyroid, pituitary, or suprarenal capsule. We are indebted to Dr. Izar for the publication of a case with full details, which throws some light on the causation of sclerodermia and its relation to pituitrism.[1] The patient was a girl, 7 years of age, who developed an extensive sclerodermia on the neck, face, thorax, and antero-external surface of the limbs. The cutaneous thickening was so great that the child resembled a wax doll. The mother and sister were short and fat, suggesting the pituitary type, and a radiogram of the child's skull showed some enlargement of the sella turcica. But the chief interest of the case lies in the result of the pharmaco-dynamic reactions. For instance, neither adrenalin, pilocarpine, atropine, endothymin, endothyroidin, nor endo-ovarin gave rise to any reaction worthy of mention, while on the other hand injections, both of total pituitary extract (hypophysin) and of pituitin in doses of ¼–½ c.cm., induced rise of temperature, increased arterial tension, and slowing of the pulse to a marked degree. With this positive reaction a therapeutic course of pituitary extracts was commenced, with the result that after the sixth daily injection of ½ c.cm. the sclerodermic lesion began to recede. By the forty-ninth day, after 16 injections of hypophysin and 16 of pituitin, there only remained some pseudo-œdema on the neck, forearms, and legs, and treatment was continued by the administration of half a tablet of Byla's hypophysin on alternate days by mouth. All signs of the skin affection had disappeared at the end of six months. The striking and beneficial action of this opotherapic cure would seem to establish without doubt the pituitary origin of the cutaneous lesion in this case.

SMOKING AT WORK.

THE question of labour efficiency in relation to tobacco-smoking has been revived in a prominent fashion by the increasing practice of smoking in the workshops. It seems clear that in many cases the practice is tolerated by authority, and the anti-tobacco protagonists may soon be expected to put forward their case against this innovation, based on the ills to which it may give rise, when the evils of nicotine will be emphasised. The abuse of tobacco is well recognised, and that the smoke from it, especially when inhaled, has definite toxic properties must be admitted. A few years ago we furnished analyses from THE LANCET Laboratory showing how the smoke from cigarettes, pipes, and cigars differs, amongst other things, in nicotine content.[2] The results showed that while nicotine is a highly poisonous constituent of tobacco, the evidence was not conclusive that this alkaloid invaded the consumer to the extent hitherto accepted. There was more nicotine found in the smoke from the cigar and pipe than from the cigarette, the suggestion being that in the last case a large proportion of the nicotine was destroyed by combustion. There are, however, other bases found, probably of a toxic character, and there is present also an appreciable amount of carbon monoxide. Certain processes which entail the manipulation of poisonous materials, such as lead and arsenic, must always contra-indicate smoking, since the toxic substances may be carried to the mouth by soiled fingers, pipe stems, or cigarettes, and the same contra-indication exists where there is risk of fire or explosion. But when all is said we must face the fact that those who have acquired the habit of smoking are more contented when permitted to indulge in it and are irritable when it is prohibited. To-day the psychology of the worker is rightly receiving more and more attention, and a real and strong case must exist before anything which promotes contentment is prohibited. Smoking on an empty stomach—e.g., before breakfast and more than three hours after the last meal—seems to be felt injuriously by many subjects, while smokers generally appear to hold that smoking directly after meals promotes digestion; the belief is widespread and calls for consideration. The custom now rapidly increasing in industrial work of introducing short mid-morning and mid-afternoon pauses, during which time tea-trolleys go round with light refreshment—a practice recommended as long ago as 1861 by medical men—provides reasonable opportunities for allowing smoking. Cases have even been quoted of increased output following permission to smoke; but we are not aware of any data of scientific value either to justify or to contradict this claim. The question, which is not without importance, calls for investigation, and, we suggest, is worth the attention of the Industrial Fatigue Research Board.

THE SERUM TREATMENT OF CHANCROID.

THE amount of research carried out in connexion with the serum treatment of ulcus molle is surprisingly small and, apart from Ito's investigations, little has been done to explore this particular field. In a paper read early this year at a meeting of the Swedish Medical Society, Dr. J. Reenstierna[1] gave an account of his experiences with a serum prepared at Professor Pettersson's bacteriological laboratory, and tested in about 100 cases of chancroid with bubo formation at Professor Almkvist's venereal department of the Karolinska Institute. The serum was obtained from large rams which were given intravenous injections of increasing quantities of killed and living cultures of Ducrey's streptobacillus. In the "autoreferat" of his paper, Dr. Reenstierna does not give further particulars as to the dosage of these injections which were repeated over a long period before the serum was used. In the matter of complement fixation, the serum was proved to be definitely specific, but agglutination tests could not be satisfactorily carried out owing to the granular clumping which suspensions of Ducrey's streptobacillus exhibit even before the addition of agglutinating substances. Other laboratory tests of the specific properties of this serum could not be carried out for want of suitable material, but the clinical tests were strikingly convincing. Within 24 hours of an intramuscular injection of 10 c.cm. of the serum marked improvement was observed; the inguinal glands became less painful and swollen, and the overlying skin less inflamed. Dr. Reenstierna has attempted to augment the therapeutic action of this serum by the addition of killed, thermogenic bacilli, such as typhoid bacilli, and he advocates this double-barrelled therapy because, after many years' experience of the serotherapy of gonorrhœal arthritis, he has found the benefits obtained to be proportional to the degree of fever provoked. Ducrey's streptobacillus, like the gonococcus, is very sensitive to a temperature only a few degrees above

[1] La Riforma Medica, May 22nd, 1920.
[2] THE LANCET, April 6th, 1912.

[1] Svenska Läkaresällskapets Förhandlingar, Hft. 3 and 4, 1920.

the normal body temperature, and an injection which provokes fever should, in Dr. Reenstierna's opinion, prove beneficial on this account. His achievements certainly seem to confirm his claims, and Professor Almkvist, who took part in the following debate, paid an appreciative tribute to the indefatigable efforts which had yielded such promising results. Negative confirmation of the specific properties of the serum was found in its failure to provoke any reaction, favourable or otherwise, in seven cases wrongly diagnosed as chancroid. The aspiration and bacteriological examination of pus in the inguinal glands revealed staphylococci, not Ducrey's streptobacilli. As for the cases of true chancroid, they usually cleared up altogether within little more than a week. Usually two injections were given with an interval of four or five days, and in no case did a relapse occur. Dr. Reenstierna publishes details of a case of suppurating bubo which had persisted for more than a year and which responded with dramatic effect to serotherapy.

ACUTE EPIDEMIC ENCEPHALITIS.

WITHIN a period of three days at the latter end of May three cases were admitted into the wards of the London Hospital presenting symptoms of encephalitis with unusual features and all ending fatally. The clinical manifestations accord in a striking manner with those of a condition described by Sicard and Kudelsky at a meeting of the Société des Hôpitaux de Paris on Jan. 23rd of this year under the name of "encéphalite aiguë myoclonique." It is of interest to note that Sicard points out that the cases he described are in turn similar to those described by Dubini in 1846 under the name of electric chorea. The London Hospital cases are described in detail in this week's issue of THE LANCET by Dr. Arthur W. M. Ellis, assistant director of the medical unit in that institution, in a paper which should be of interest to all our readers. He points out that similar cases have been recorded in France since Sicard and Kudelsky's original description by a series of observers, while cases of identical character have been observed and recorded in Switzerland, America, and Germany. Dr. Ellis has not been able to find any cases recorded in this country previous to those observed by himself, though myoclonic contractions have been described as a late sequel of lethargic encephalitis. The first of Dr. Ellis's cases was a labourer aged 17 years, the second a child of 6, the third a Jewess aged 28, who was pregnant. The initial symptom in every case was vomiting, followed in two of the three by severe pain in the lower part of the abdomen and the thighs. Obstinate constipation was invariable and in every case complete retention of urine, necessitating frequent catheterisation, occurred. Severe and complete insomnia progressing to wild delirium seems to be an important and distressing feature, and apparently the only drug inducing any degree of quiet in these patients is hyoscine. The most characteristic feature, however, is the shock-like contractions, chiefly of the abdominal muscles, occurring at the rate of 30 or 40 to the minute, and often more marked on one side. The forceful character of these movements is shown by the fact that in two of the patients they caused a pulling down of the lower ribs and a lifting upwards of the pelvis. The pupils were widely dilated in all these cases, but the dilatation disappeared with the onset of coma. Profuse sweating, leading to sudaminal or miliary rashes, also occurred, and there was a moderate degree of fever. Speech was jerky, indistinct, and slurred in two of the cases, but frequently rational periods occurred in the intervals of the delirium. Some paresis of the eye muscles occurred in one case and was doubtfully present in a second. Nystagmus was observed in one of the cases only. A well-marked leucocytosis with increase in the polymorphonuclears was present in all three—a point of distinction between these cases and ordinary lethargic encephalitis. The cerebro-spinal fluid was clear, but showed slight increase in cells and in the protein content in all three. Dr. Ellis was fortunate enough to obtain autopsies on two of his three cases, the only gross lesion observed being a moderate degree of cerebral congestion. He proposes to report on the histological conditions found later. He is to be congratulated on the prompt publication of the details of the clinical features of his cases, thus drawing the attention of the profession in this country to an interesting condition. Attention has already been pointedly directed to the lethargic type of encephalitis, but in addition to this now classic picture there is the paralysis agitans type observed in this country, the hyperkinetic form first described in Australia in 1918, the myoclonic form dealt with in this note, while neuralgic, choreic, psychic, and tabetic forms have been adduced. Economo in his most recent article[1] points out how widely the disease has varied in different areas and at different times in the same area since the first outbreak of the epidemic. In the present Austrian epidemic the somnolent ophthalmoplegic cases only number about 30 per cent. of the total, and at least 60 per cent. show excitation phenomena of one kind or another. In this country, where the number of cases has been much smaller than on the continent generally, the great variations which may occur in the clinical picture have not been so widely recognised. It is to be hoped that practitioners encountering cases in their practice similar to those which Dr. Ellis puts on record will examine and record them carefully or transfer them to institutions where they can be scientifically investigated. Dr. Ellis rightly points out that the identity of causation of his cases with that of the lethargic cases of encephalitis, though probable, has yet to be established. We hope that the London Hospital Medical Unit will continue work on the lines indicated by Dr. Ellis's communication, for collective investigation of other cases, if, as seems likely, they become more frequent, may yield results of great interest and importance.

THE BOGUS "DOCTOR."

THE medical profession is unfortunate in that it apparently offers more temptation than any other to fraudulent persons to pretend to be members of it with a view to victimising their fellows. Having once done so, they find the way of the transgressor easy so long as it remains open, and even after having been caught and convicted they are apt to resume their evil courses at the earliest opportunity. In short, the bogus doctor is a criminal who is a specialist, just as much as the abortionist, who is sometimes a bogus doctor, the trained pickpocket, or the blackmailer; and he is assisted by the credulity of others. Medical men, if not actually brought in contact with him, and even those who are, do not always take the precaution of establishing his identity, and laymen, who fall into his hands, being usually members of the more ignorant classes, have not sufficient knowledge or sufficient observation to detect him. A man convicted at Bow-street a short time ago and sentenced to nine months' imprisonment with hard labour was an example of the sham-medical recidivist, for he had quite recently undergone 18 months' imprisonment for posing as a medical practitioner and signing death certificates when acting as a locum tenens. He was an instance of ability to impose easily upon a selected victim, for he had obtained £25 from a cartage contractor, presumably a business man, by pretending to be a medical practitioner and to have invented a cure for cancer which he valued at £40,000—a story which would have secured his undoing if told to a medical man. The impostor had, as a matter of detail, first made the acquaintance of the prosecutor at a watering place by saluting him as a brother freemason, and giving correctly the signs and tokens of the degree which he claimed to have. Whether he was in fact a freemason, and how far the belief that he was one assisted him in obtaining the money, is not stated, but it may be worth the while of medical men to note the case. We do not recall any previous instance of this method of self-introduc-

[1] Wien. klin. Wochenschr., 1920, xxxiii., 329.

tion or self-recommendation being employed for the purpose of fraud. It will therefore be as well to remember that the credentials of a stranger desiring to be engaged as a locum tenens or accepted as a medical colleague are not to be considered with less care because he also alleges the common bond of freemasonry. As has been suggested above, to judge from the frequency with which cases are reported in the newspapers, no other learned profession is so liable to temporary adoption for nefarious purposes as medicine. Sham officers abound, but they are a temporary by-product of the war. The Church and the Law offer few opportunities to the dishonest, and sham solicitors, if they occur occasionally, can only expect success so long as they can keep out of contact with genuine members of the legal profession. This is not easy for them to do, and their sphere of operations is thus narrowed considerably.

PARAPLEGIC MULTIPLE SCLEROSIS.

Dr. Archibald Church,[1] of Chicago, states that a generation ago multiple sclerosis was regarded as an absolute rarity in the United States, mainly because only the classical picture, as manifested by nystagmus, intention tremors, and scanning speech, was recognised. On the other hand, like other neurologists, he has found that *formes frustes* and aberrant types have recently been recognised much more frequently than formerly. In addition to the generalised classical form of multiple sclerosis, which is infrequent except as the terminal phase of the fractional forms, he has encountered the following clinical types: a cerebellar type, a rare early manifestation of the disease which tends to become fully developed fairly rapidly; an optic atrophy type, which is not uncommon and only slowly merges into the generalised condition; a paraplegic type, which appears to be the commonest of all, and which very slowly assumes the features of upper level and cerebral involvement; and lastly, a very rare monoplegic type. The paraplegic type to which Dr. Church draws special attention begins with weakness or clumsiness in one leg or foot, which not infrequently leads to stumbling or rather severe falls. This irregularity in gait may improve or seem to subside completely after being present for weeks or months, but there is only a temporary remission. Contrary to previous descriptions, sensory disturbances, both subjective and objective in character, are not uncommon in this type of multiple sclerosis. The most important signs of the disease when the lower extremities are mainly or exclusively affected are ankle clonus, Babinski's sign, and unilateral partial or complete abolition of the umbilical reflex. A lack of uniformity in the affection of the reflexes on the two sides is frequently observed. In the late stage sphincter control is not rarely affected, and actual incontinence may occur. Signs of cerebral involvement commonly supervene sooner or later, such as squint, diplopia, optic atrophy, irregularities of the visual field, speech defects, and even mental peculiarities. Treatment is usually disappointing. Dr. Church has tried several cases with intensive courses of mercury, salvarsan, and the iodides, as well as with fibrolysin, without observing any favourable results.

[1] Journal of the American Medical Association, June 12th, lxxiv., p. 1645.

RESEARCH STUDENTSHIPS AT ST. MARY'S HOSPITAL.—The recently formed Institute of Pathology and Research at St. Mary's Hospital has established three post-graduate research studentships with a view to the training of recently qualified men or women in methods of research. Each studentship is of the value of £200 a year, and is tenable for six months, with the possibility of extension to 12 months. Preference is to be given to graduates from St. Mary's Hospital Medical School. The appointment may be held in any one of the seven departments of the institute, according to the choice of the individual student. The following have been appointed for the first six months in the departments of anatomy and embryology, general and special pathology, and chemical pathology respectively: Dr. Ida Mann, Dr. Joan Ross, Dr. Samuel Simms.

MINISTRY OF HEALTH: OUTDOOR MEDICAL STAFF.

As announced in THE LANCET of March 20th the Minister of Health appointed a Committee to assist him in the selection of suitable candidates for the post of Medical Officer of the Ministry of Health, for which applications were then invited, in the following terms:—

The medical officers will be required to perform such duties as may be assigned to them by the Minister from time to time. These duties will include:—

(*a*) Acting as referees on questions of incapacity of insured persons for work, and giving second opinions on questions of diagnosis and treatment;
(*b*) Organising the arrangements for work of part-time medical referees for the area; and
(*c*) Assisting in the administration of the Insurance Medical Service.

The country will be arranged in territorial areas, and each officer will be required to reside in the area assigned to him.

The rate of remuneration will be £1000 per annum, rising by annual increments of £50 to a maximum of £1400, and no war bonus will be payable in addition thereto. Officers appointed to this scale will be established civil servants with the usual pension rights.

Applicants who are of the age of 50 years and upwards who may be appointed will not be established, but will receive a total remuneration fixed at £1400 a year (non-pensionable), and in such cases the appointments will be for a limited term of years.

Applicants must be medical men of not less than ten years' standing, and preference will be given to those having wide experience of general practice, especially amongst the industrial population.

The Committee have presented to the Minister the following report:—

Report.

1. We have the honour to report to you the result of our deliberations pursuant to your minute of March 24th, 1920, whereby we were appointed members of a committee to consider applications of candidates for appointment as medical officers of the Ministry and to make recommendations to you of candidates suitable for appointment.

2. The total number of applications received was 1325. Of these, 1242 were in respect of English and 83 in respect of Welsh appointments (certain candidates applying under both heads).

3. In our consideration of the Welsh applications we have had the benefit of the assistance (in accordance with your desire) of Dr. Meredith Richards.

4. After careful consideration of the applications and testimonials of the candidates we selected for interview 159 of those applying for English appointments and 14 of those applying for Welsh appointments.

5. The instructions printed on the form of application required each candidate to give the names of three persons able to speak from personal knowledge of his qualifications for these appointments. In the case of each candidate selected for interview these persons were communicated with before the interview, and the replies received were duly considered.

6. We think it proper that you should be informed as to the considerations by which it has appeared to us that our judgment should be guided in the selection of candidates suitable for the discharge of the duties of these posts. We have carefully weighed, in regard to each candidate, the evidence of his qualifications in the following respects:—

(*a*) Medical degrees and diplomas, academic distinctions, and early clinical experience in resident appointments at hospitals.

(*b*) General clinical experience: (i.) in general practice, especially practice among the industrial population in England or Wales; and (ii.) in other fields of medical practice, whether in civil life or as a medical officer of His Majesty's Forces.

(*c*) Experience as a medical referee, whether in connexion with National Insurance, Workmen's Compensation, the work of the Ministry of Pensions, or otherwise.

(*d*) Experience of National Health Insurance administration, as a member of an Insurance Committee or otherwise, and other administrative experience—e.g., in public appointments or in military service.

(*e*) Professional and public reputation in the district in which the candidate practised.

(*f*) Personal characteristics, including presence, force of character, and tact.

7. Certain candidates were pre-eminently suitable in some of the foregoing respects and some in others; and we have not attached preponderating weight to any particular set of considerations, but have viewed each candidate's qualifications on balance as a whole.

8. We regarded it generally as important that candidates should not be below 40 or above 55 years of age, but a few

younger or older candidates were otherwise so exceptionally well qualified that we have not hesitated to include them among those recommended as suitable for appointment.

9. In the case of the Welsh appointments we attached importance to a knowledge of the Welsh language.

10. We submit for your consideration the enclosed list of names of 55 candidates suitable for appointment in England and names of 8 candidates suitable for appointment in Wales.

11. Our report to you would be inadequate without the expression which we desire to make, of our sincere appreciation of the great assistance rendered to us by Dr. McCleary and Mr. Fitzgerald, the secretaries of the Committee. Their efficiency, diligence, and courtesy have reduced to a minimum our labours in endeavouring to do full justice to so large a number of candidates of whom a relatively high proportion merited interview.

The Report is signed by the whole of the Committee of Selection, which was constituted as follows:—

T. W. Shore, M.D., M.R.C.S., L.R.C.P. (Chairman), Dean of the Medical School, St. Bartholomew's Hospital.
E. Collingwood Andrews, M.D., B.Sc., Consulting Medical Officer to the Hampstead Maternity Home.
Sir Hamilton A. Ballance, K.B.E., C.B., M.S., F.R.C.S., Surgeon, Norfolk and Norwich Hospital.
(Nominated by the Civil Service Commissioners.)
Professor R. A. Bolam, O.B.E., M.D., M.R.C.P., Honorary Physician, Skin Department, Royal Infirmary, Newcastle-on-Tyne; Professor of Medical Jurisprudence, University of Durham.
H. G. Dain, M.B., M.R.C.S., L.R.C.P., Chairman of the Birmingham Insurance Committee.
Professor Arthur J. Hall, M.D., F.R.C.P., Senior Physician, Sheffield Royal Hospital, Professor of Medicine, University of Sheffield.
Sir Walter Kinnear, K.B.E., Controller of National Health Insurance, Ministry of Health.
E. J. Maclean, M.D., M.R.C.P., Senior Gynæcologist, Cardiff Infirmary, Lecturer on Midwifery, University College, S. Wales.
J. Smith Whitaker, M.R.C.S., L.R.C.P., Senior Medical Officer, Ministry of Health.
G. F. McCleary, M.D., W. T. Fitzgerald, Joint Secretaries.

The Selected Medical Officers.

Dr. Addison has decided, with the concurrence of the Treasury, that 30 whole-time officers should be appointed for England and three for Wales at the inception of the scheme, and the following are the selected medical officers for England, leaving one vacancy to be filled:—

G. Ashton, 2, Palatine-road, Withington, Manchester.
S. A. Bontor, Great Berkhamstead.
T. L. Bunting, Scotswood-on-Tyne.
T. M. Carter, Burnley, Westburn-on-Trym, Bristol.
W. Davidson, 91, Wimborne-road, Bournemouth.
W. Duncan, 169, Ashley-gardens, S.W.1.
J. Gray Duncanson, 1, Ranelagh-villas, Hove, Sussex.
G. W. Eustace, Maltravers-street, Arundel.
A. Heath, 66, Otley-road, Harrogate.
A. Linnell, Paulerspury, Towcester.
M. G. McElligott, 23, Standish-gate, Wigan.
W. Moir, Belgrave-square, Darwen.
D. G. Newton, 7, Gladstone-road, Sheffield.
J. Orton, Great Heath House, Coventry.
R. Paterson, 247, Boundary-street, Liverpool.
B. A. Richmond, 34, Bromley-road, Catford, S.E.
W. Rigby, 16, St. Alban's-place, Blackburn.
B. M. H. Rogers, 14, Mortimer-road, Clifton, Bristol.
J. Dill Russell, Osman House, Fortis Green, E. Finchley, N.
H. L. Rutter, 31, West Parade, Newcastle-on-Tyne.
E. W. Selby, 13, Hall Gate, Doncaster.
H. Sinigar, Western-road, Southall, Middlesex.
G. K. Smiley, 20, Kedleston-road, Derby.
M. R. Taylor, 64, Churchfield-road, Acton.
J. F. Walker, Rocklands, Clifton-terrace, Southend-on-Sea.
H. A. Whitcombe, Locharwoods, Formby, Liverpool.
E. H. Willock, 91, London-road, Croydon.
C. R. Wood, 75, Langdale-road, Hove.
A. Young, 43, Collegiate-crescent, Sheffield.

For Wales the following have been appointed:—

J. Evans, Bron Menai, Carnarvon.
D. N. Morgan, Gilfach Goch, Nr. Bridgend.
T. R. Llewellyn, Penygraig, Glam.

For England it has also been decided to appoint four medical officers of higher grade, who will be designated divisional medical officers and will superintend the work of the whole-time and part-time medical officers in the divisions assigned to them respectively. The following have been appointed to these posts.

Divisional Medical Officers.

R. E. Crosse, 68, Nightingale-lane, S.W.
A. Fulton, Armoy, Old Basford, Nottingham.
C. H. Milburn, 13, York-place, Harrogate.
H. J. Neilson, Shandon, St. George's Hill, Weybridge.

In Wales the senior medical officer of the Ministry for that country will discharge the functions, as regards the outdoor medical staff, which are discharged in England by the divisional medical officers.

Part-time Appointments.

In addition to these whole-time appointments it is understood that part-time appointments will later be considered, when payment will be made by session or by case. Applications for these appointments have not yet been invited.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

A QUARTERLY meeting of the Council was held on July 8th, Sir GEORGE MAKINS, the retiring President, being in the chair.

The PRESIDENT reported the re-election of Sir Anthony Bowlby and Sir D'Arcy Power and the election of Mr. Francis James Steward to fill three vacancies in the Council (see THE LANCET, July 10th, p. 104).

Diplomas in Public Health were granted jointly with the Royal College of Physicians to 35 candidates found qualified at the recent examinations.

The Council passed a vote of thanks to Colonel L. A. Waddell, late I.M.S., for his valuable gift of crania to the Museum, and to Sir Charles Tomes for presenting to the Museum the sections of teeth made and used by him and his father in their researches into the comparative anatomy of the teeth.

The following recommendation was received from the Committee on the Special Primary Examination for the Fellowship:—

That on account of the delay which has occurred in the demobilisation of officers in the Army in the East (India, Persia, Mesopotamia, &c.) an additional First Professional Examination for the Fellowship under war conditions be held in May next, and that it be definitely stated that such examination is to be the last held under special war conditions.

This recommendation was approved and adopted.

A letter, dated July 5th, was read from Sir Frank Colyer resigning his membership of the Board of Examiners in Dental Surgery in anticipation of the expiration of his period of office on Oct. 14th next, and his resignation was accepted.—The PRESIDENT stated that the vacancy thus occasioned would be filled up at the next meeting of the Council.

The Council elected the following professors and lecturers for the ensuing year:—

Hunterian Professors.

Arthur Keith: Six lectures on the Principles of Craniology Applied to Clinical and Racial Problems.
William Sampson Handley: One lecture on the Pathology and Treatment of Lupus.
Walter Goldie Howarth: One lecture on Mucocele and Pyocele of the Nasal Accessory Sinuses.
Charles Walter Gorden Bryan: One lecture on the Early and Late Effects of Injuries of the Diaphragm, with special reference to wounds jointly involving thoracic and abdominal viscera.
Harry Platt: Two lectures on the Surgery of the Peripheral Nerve Injuries of Warfare.
Alfred Geo. Timbrell Fisher, M.C.: One lecture on Loose Bodies in Joints.

Arris and Gale Lecturers.

Frederick Wm. Edridge-Green: One lecture on the Cause and Prevention of Myopia.
Joseph Faulkner Dobson: One lecture on the Function of the Kidneys in Enlargement of the Prostate Gland.
John Howell Evans: One lecture on the Azygos System of Veins in their Association with Surgical Affections.

Erasmus Wilson Lecturer.

Samuel George Shattock: Six demonstrations on pathological specimens in the Museum.

Arnott Demonstrator.

Arthur Keith: Six demonstrations on the contents of the Museum.

Thomas Vicary Lecturer.

Sir D'Arcy Power, K.B.E.: One lecture on the Education of a Surgeon under Thomas Vicary.

Sir Anthony Bowlby was elected President for the ensuing year. Sir Charles Ballance and Sir John Bland-Sutton were elected Vice-Presidents.

A vote of thanks to Sir George Makins for his services as President during the past three years was passed.

The following were admitted as Honorary Fellows, and were entertained to dinner at the College by the Council in the evening: Dr. A. Depage, Brussels; Dr. Pierre Duval, Paris; Dr. J. M. T. Finney, Johns Hopkins University; and Dr. Charles H. Mayo, Rochester, U.S.A.

REGISTRAR-GENERAL'S EIGHTY-FIRST ANNUAL REPORT, 1918.

Sir Bernard Mallet's report on the vital statistics of England and Wales in 1918 has recently been issued, addressed to Dr. Addison, as Minister of Health. The Registrar-General summarises his report in a comprehensive introduction, in which the year under notice is declared to have been one of extraordinary healthiness, notwithstanding the exceptional prevalence of influenza towards its close. The civilian deaths in 1918 numbered 587,828, and corresponded to a rate of 17·6 per 1000 of the estimated population—which rate is reduced to 17·1 by correction for age distribution of the living. The extent of the reduction has been increased during the war by the withdrawal from the civilian population of males at an age when mortality is below the general average. But this effect has been masked by the high influenza mortality of 1918 which occurred at these ages. If the record of 1918, apart from epidemic incidence, had not been an extremely good one, comparison with past years would have been far less favourable. And if a true idea of the public health is desired it is necessary to ascertain what the mortality would have been in the absence of this epidemic. "The first 40 weeks of the year showed a very good record indeed," in spite of epidemic influence: it would therefore be wrong to speak of 1918 as a period of excessive fatality, without discriminating between the mortality due to influenza and that due to other causes. It is unfortunate that the real trend of mortality during the three years 1916–18 should have been obscured, first by the deterioration of the male population already referred to, and, in addition, by the epidemic fatality of the last few weeks of 1918.

The following is a summary of the chief features of the mortality of the year:—

Of the total deaths registered in the course of 1918 only 10·5 per cent. were those of infants who had not completed their first year of life. This is by far the lowest rate of *infant mortality* recorded, the percentage so recently as 1901–10 having been 22·6. The change is partly due to increased influenza fatality at the higher ages, but mainly to the rapid fall of infant mortality, and to reduction in births. In terms of total births, infant mortality in 1918 was equal to 97 per 1000, or 9·3 per cent. below the average in the ten preceding years. It is one of the lowest rates on record, only three previous years having experienced infantile mortality of less than 100 per 1000 births. The provisional figures for 1919 show a rate of 89 per 1000, or 2 per 1000 below that of 1916, which was the lowest rate hitherto attained. The comparison, however, is affected by the fact that in 1916 the birth-rate was falling, whilst it was rising in 1919; and when the necessary allowance has been made for these movements the rates for the two years appear to be about equal.

As compared with the preceding year enteric fever, measles, and diarrhœa showed a lower mortality, whilst scarlet fever, diphtheria, and whooping-cough showed a higher. The deaths from *enteric fever* numbered 950, of which 65 occurred among non-civilians. The resultant mortality, 26 per million living, is the lowest ever recorded in this country. To some extent the fall is due to absence, on foreign service, of a large number of men of the ages at which enteric fever mortality is highest. The remarkable fall from 300 deaths per million living in 1869 to 26 in 1918 may be followed in a new table, which indicates that the loss of life from this eminently preventable disease is now only one-third of what it was even ten years ago. The disease is rapidly losing its significance as a cause of death in this country.

The great *influenza epidemic*, which commenced about midsummer in 1918, increased the deaths from this cause from the 5000 to 10,000 usually recorded in a year to no less than 112,329 in the year under notice, the corresponding death-rate being equal to 3129 per million living. In addition to this the epidemic led to a large increase in the loss of life assigned to diseases of the lungs, including tuberculosis. The total deaths attributable to influenza have been estimated to number 132,000. Owing to the exceptional importance of this outbreak and to its continuance until the following spring, it has been dealt with as a whole in a special report now in preparation.

Tuberculosis in its various forms accounted for 58,073 deaths, or 2139 more than those so classified in the previous year. Of these, 1369 were deaths of non-civilians. The mortality among the civilian population amounted to 1694 per million, a figure in excess of the total mortality recorded for any year since 1904. The increase of mortality was probably due to the epidemic of influenza, had it not been for which tuberculous mortality in the year under notice would probably have shown some reduction on that of 1917. The mortality from influenza among sufferers from phthisis is known to have greatly exceeded that of the general community. Notification has not enabled us to do more than estimate the number of the phthisical population, but if the average duration of the disease be taken at about three years there should be about 60,000 female sufferers in England and Wales. The remarkable increase in deaths from tuberculosis in lunatic asylums has been continued throughout 1918, when the fatal cases amounted to 5605, against 4189 in the previous year, and an average of 1800 in the three years 1912–14. This increase has occurred notwithstanding a decline in the number of inmates. A committee which investigated the causes of increased mortality in asylums ascribed the principal share of the increase to reduction in quantity and deterioration in quality of food (particularly flour). Other considerations mentioned as of secondary importance were deterioration of the asylum staffs and want of space for isolation, owing to the evacuation of some asylum buildings for war purposes, and consequent congestion of the remainder. The increase of asylum mortality is considerably greater among the male than among the female patients, a fact which seems to point to deficiency of staff as an important cause, because the demands upon the female staff for special war service would naturally be less than upon the male.

Cancer mortality, if stated in the form of an ordinary crude death-rate, was higher in 1918 than in any other year, but if comparison be made by means of standard rates which allow for the present abnormal age constitution of the male civilian population, there will be seen to have been an appreciable decrease from the previous year's record. Standardisation fails to eliminate entirely the fictitious increase due to the exclusion from the population in war years of a large number of men furnishing very few deaths from cancer. An attempt at a fuller correction, on this account, shows that the standardised cancer mortality of 1918 was probably lower than that of 1911–14 also.

The successive reports from 1915 onwards show how seriously the efforts of the department for the improvement of the national statistics have been hindered by the late war. In our notice[1] of the vital statistics for 1917, shortly after the appearance of the official report, we commented on the difficulties encountered by the Central Office since the outbreak of hostilities, with especial reference to the measures successfully employed for their removal. The present report covers ground which is in some degree common to each of the three preceding. As a conspicuous instance of this, reference may be made to the serious disturbance of

[1] See THE LANCET, June 24th, 1919, p. 1034.

the population directly caused by enlistment for foreign service, in consequence of which there has been derangement of the birth and death ratios when contrasted with those of peace times. After more than five years of war and the aftermath of war it may surely be hoped that the former valuable achievements of the National Statistical Bureau will shortly be renewed. In reviewing the vital statistics of the several years since the outbreak of hostilities Dr. T. H. C. Stevenson has discussed very fully the difficulties of estimating populations, both for the whole of England and Wales and for its various subdivisions. These difficulties have been greatly increased by the war, which has resulted in rendering the methods relied on in normal times useless for the purpose. He has also described in detail the modifications of method resorted to from time to time in framing the population estimates. Returning to the subject on the present occasion, Dr. Stevenson again refers to the independent sources from which the civilian populations of separate localities are derived. These are (1) the National Register, of which a count was made for the purpose in the middle of 1918, and (2) the returns made under the rationing of food scheme. For various reasons neither of these enumerations, devised, as they must have been, for other purposes, can be considered wholly satisfactory from the statistical point of view. It is believed, however, that the food returns have improved with the successive issues of coupons, and for this reason these have chiefly been relied on for 1918, the National Register count being used as a check in certain cases of special difficulty. The results thus obtained are certainly superior to any that could have been prepared in the Central Office by dependence upon the methods formerly employed in the absence of these exceptional sources of information. The changes due to war have been so great that these methods, unreliable even in peace time, would have been practically worthless. The food-rationing returns of local populations unfortunately afford no information on which estimates can be based for subdividing these populations by sex and age. Moreover, inasmuch as the methods upon which they have depended in the past have been rendered useless by the migration attending the war, these estimates cannot be prepared until the census of 1921 is available for the purpose. Their absence has again necessitated the omission or substantial modification of many of the tables usually appearing in these reports.

It should be remembered that throughout this Report the death-rates of males in 1918 are invariably based upon civilian deaths and civilian population. This is necessary, both because of the impossibility of ascertaining the average military population of each district and because experience has shown that under the system of transferring deaths to the area of previous residence civilian deaths alone can in war time be tabulated for local areas.

Mr. Arthur H. Sandiland, late registrar to the Islington Tuberculosis Dispensary, died on July 7th while being conveyed to the Royal Free Hospital in a motor-omnibus in which he had been taken suddenly ill. Mr. Sandiland, who was 72 years of age, received his medical education at St. Bartholomew's Hospital and qualified L.R.C.P. Lond., M.R.C.S. Eng. in 1869.

HOSPITAL SUNDAY FUND.—**The following church** collections, &c., have been received at the Mansion House up to June 27th.

£670: St. Columba's (Church of Scotland), Pont-street; £394: St. James, Piccadilly; £370: Holy Trinity, Sloane-street; £335: Christ Church, Lancaster Gate; £314: St. Michael's, Cornhill; £206: St. Alphage, London Wall, with St. Mary, Aldermanbury, and Westminster Chapel, Buckingham Gate; £175: St. Jude's, South Kensington; £174: Brixton Independent Church; £150: St. Anne's, Stamford-hill, and Whitechapel Primitive Methodist Mission; £147: St. Andrew's, Lambeth; £145: Great Stanmore Parish Church; £139: St. Mary's, Islington; £134: St. Anne's, Soho; £128: St. Jude's, Mildmay Park; £127: Immaculate Conception, Farm-street; £123: All Saints, Margaret-street; £116: St. Philip's, Kensington, and St. Peter's, Belsize Park; £104: Christ Church, Gipsy-hill, and St. Luke's, Redcliffe-square; £103; St. Bartholomew's, Sydenham; £102: Temple Church; £101: Christ Church, Westminster.

The following donations are also announced:—

£500: National Bank of India, Ltd.; £300: Sir John Ellerman, Bt.; £200: Mr. Alexander Miller; £105: Mr. W. H. Cullen; £100: Messrs. Hunt, Leuchars, and Hepburn.

THE

CONSULTATIVE COUNCIL OF MEDICAL AND ALLIED SERVICES:

A DISCUSSION AT BRISTOL.

A MEETING of the Bath and Bristol Branch of the British Medical Association was held at Bristol on July 9th, and was inaugurated by a luncheon given at the Royal West of England Academy, Bristol, by Dr. P. Watson-Williams, President of the Branch.

Dr. Watson-Williams's Luncheon.

Lord Dawson of Penn was the principal guest, while the Lord Mayor of Bristol and the Lord Mayor of Cardiff were also present, as well as prominent representatives of medical interests of all sorts.

Dr. WATSON-WILLIAMS, in proposing the toast of the Consultative Council, attributed the movement culminating in the creation of a Ministry of Health to the efforts for 50 years of the British Medical Association, and in the first instance to Dr. Rumsey, of Cheltenham. He said that the Report of the Consultative Council supported rather than supplanted existing organisation, the object being not the effacement of the present provisions, but their coördination and evolution. He considered that the Council constituted an organised nexus between the Ministry and the medical profession, and might become an official channel by which the profession could give direct expression of its views to the Ministry. But it was certainly of the utmost importance that the medical profession should have some voice in the recommendation of suitable members of the Council if the Council was to exercise its functions in the most useful manner.

Lord DAWSON said that it was by no means a usual procedure for reports made to Ministers to be published for the open criticism of the public and of the section most concerned. That such a course was followed in this instance was due to the liberal-mindedness of Dr. Addison. After congratulating the West Country upon its reputation for the care of the sick, he said that a new chapter was now opening in the story of the hospitals of this country, and that the West of England was once more in the forefront; for already, in the county of Gloucester, a scheme had been laid down by Dr. Middleton Martin, forecasting the Report of the Consultative Council. Under this scheme general practitioners were brought into relation with primary hospitals, which were staffed by themselves, and these primary hospitals were linked up with secondary hospitals in the larger towns. Such a scheme, although it had not yet reached the stage of fruition, showed that here in the West the responsible people were thinking in terms of 1920.

Passing on to a general exposition of the report of the Consultative Council, Lord Dawson said that the provision for the health of the people in hospitals or otherwise was demonstrably inadequate. It needed not to be swept away, but to be expanded and adjusted. Hospitals were inadequate because the population had grown more rapidly than they had done; also because the basis on which hospitals had been distributed was not determined by the needs of local populations, but by the chance existence of public spirit and benevolence in the district; and yet again because recent progress in medicine demanded increased institutional treatment which the present hospital system was not elastic enough to supply. It was not a case merely of providing more hospitals, but of the careful grading and linkage of hospitals. Another reason why change was imperative was to be found in the awakening of the public conscience on health matters; people had now a positive instead of merely a negative conception of health, and there was a sharper demand for preventive measures and for dealing with incipient disease. The general practitioner of the future would require to be more closely identified with preventive medicine and to have access to necessary equipment. The present state of the hospitals proved how completely they had been outgrown. Many hospitals had waiting lists hundreds deep, and this was the more lamentable because these waiting lists comprised the people in whom disease was in its early stages, and whom it was most important to cure from the point of view of the community. The disability from sickness was a great weight upon the nation. In 1916 sickness benefit in England for men alone amounted to nearly 3½ millions of money, representing 6,800,000 weeks of sickness and consequent withdrawal from employment. The average annual loss due to sickness and disablement in the case of both sexes for the years 1914–16 worked out at 270,000 *years*, and in these estimates all light sickness (of shorter duration than four days) was excluded, as well as all maternity cases and cases in sanatoriums. If

an adequate health organisation existed, these figures should at least be halved. The criticism had been levelled at the report of the Council that it would entail a huge expenditure on medical services at a time when the country was impoverished, but he and his colleagues recognised that great wars must be followed by strict economy, and that however desirable certain changes might be, it was necessary to wait for the full development and to do the best that could be done in the meantime. All that was asked at the moment was that stock be taken of the position, that a reasonable review be made of what existed at present compared with what should exist, and that a scheme be devised in sufficient outline to reveal the plan according to which the health organisation of the future should shape. There was already a patchwork of medical services—tuberculosis, venereal, and so on—which had come, each in response to an urgent demand, and not as the result of any ordered policy. The time had arrived to consider the whole position and decide upon the lines of development, after which they should set to work cautiously and tentatively to build up the fabric of a medical organisation which should properly fit national needs. The Consultative Council was quite prepared to find that such a fabric could only be set up step by step. Certain principles must be laid down, but they must be principles which should be capable of some immediate applications, and he hoped that one such application might be made in Bristol.

The burden of the report was simply this: the provision of fabric and equipment, together with freedom of action for doctor and patient. It was fully recognised that the bulk of patients would be seen as heretofore in their own homes or at the practitioners' surgeries; but in each district there should be set up an institution which would contain the necessary equipment for the practitioner to complete and accelerate his work. The primary health centre would be a general practitioner clinic; only in the secondary health centre would the patient be transferred from the care of his own medical attendant. The primary centre was the most important part of the scheme at the moment. The secondary hospitals already existed; the primary hospitals were only represented at present by a few cottage hospitals inadequately equipped. The pecuniary relation between doctor and patient would remain undisturbed by the proper development of primary centres. The laity and the medical profession should discuss this matter together in view of the tendency for certain infirmaries to be handed over to the municipalities. A municipalised service was one step forward to the nationalisation of medicine, and that would be a disaster alike to the medical profession and to the public. This was not a time for criticism on the ground that the scheme would cost so many millions. What it was ultimately going to cost was of small importance. In 1870 many people might have been frightened had they been told that education would cost the country annually 33½ millions—which was the figure it reached in 1918—but no one at this time of day ventured to urge that less should be spent. The heavy expenditure which some forecasted on these new health arrangements would not come at once, and when it did come it would be more than met by the corresponding gain in national health and efficiency. He hoped that in the West Country, with its traditional munificence in hospital matters, two primary health centres might be set up as an experiment, one of them in the town and the other in the country. They would be of great service to their locality; they would relieve the strain on existing institutions, and they would have the high value of an example to the whole nation.

The LORD MAYOR OF BRISTOL, who proposed the health of representatives from neighbouring towns and counties, expressed his satisfaction that no great expenditure was immediately demanded, for in his position as head of a great municipality he was committed already to raising large sums of money for housing and other purposes. The full scheme was estimated to cost 150 millions a year, of which 90 millions would be for medical men, and 60 millions for nurses and establishment charges. His advice was to hasten slowly.

The LORD MAYOR OF CARDIFF, who responded to the toast, was less pessimistic than his brother magistrate. He had no fears with regard to the eventual finance of the scheme. Once the real meaning of the scheme was understood by the people in the industrial areas—particularly that it was not intended to interfere with the freedom of relationship between doctor and patient—he was sure that they would lend a willing hand to make it a success. He hoped that the scheme would not be worked by existing local authorities; a separate *ad hoc* body should be created in the various districts. He looked to the scheme to mature in 20 years, by which time he believed the results would be magnificent.

The proceedings closed after the health of Dr. Watson-Williams had been drunk, on the proposition of Mr. H. H. WILLS, President of the Bristol Royal Infirmary.

The Meeting of the Bath and Bristol Branch.

Following upon the luncheon, a meeting of the Bath and Bristol Branch was held, Dr. WATSON-WILLIAMS presiding.

Lord DAWSON said that his desire in meeting the branch was to elicit criticism and opinion. The medical profession had now an opportunity such as it had never enjoyed before in its history. It had been an individualistic calling and had shown a certain aloofness from public questions. But there had been growing up in recent years a steadily increasing relationship between the doctor and the community. It was for the profession now to give a lead to the nation on health matters. The public, in whose eyes the profession had gained a heightened esteem owing to the war, was prepared to listen to constructive proposals. The interim report of the Consultative Council was an attempt to systematise medical services. It endeavoured to make the preventive and curative sides of medicine meet in the general practitioner. The general practitioner must be looked upon more and more as the guide in matters of health to the residents of his district. The director of the communal clinic or primary health centre should be a man whose practice was in the district; his post should be a part-time one, paid on a time basis. This was the alternative to a whole-time salaried service. Training would be required for such a post, and this simply meant an extension of post-graduate instruction. Lord DAWSON went on to point out that the methods of investigation and treatment of disease were becoming ever more complex. The more that knowledge advanced, the more was the insufficiency of the general practitioner's equipment demonstrated. Nothing astonished him more as a consultant than the excellent work which was done by men under poor conditions. One of the vital parts of the organisation now foreshadowed was the full participation of the general practitioner in the communal equipment available at the health centre. The ideal primary health centre would have a certain number of rooms available for the examination of patients; there would be X ray provision, particularly for screen examinations, also facilities for blood testing, and so on. The administration would charge a flat rate for the use of the equipment; the pecuniary relation between doctor and patient would remain undisturbed. In the larger centres there might be arrangements for physiotherapy and massage at reasonable charges. There would also be wards, including private wards for patients who could afford to pay for them, though the treatment would be the same, of course, in the private as in the general ward. The various communal clinics which were already growing up would be brought under the wing of the primary health centre. The primary health centre had then to be correlated with the secondary health centre in the shape of the existing hospital in the large town. Here those consultative services, which were envisaged as part of the National Insurance scheme, but were held up by the war, would be available. The consultants would serve on a part-time basis and at scheduled rates, paid by the State. This would attract young consultants, to whom a certain assured income, however small, was a great help in the early days of practice. A great deal depended upon the maintenance of intellectual traffic between the primary and secondary health centres. The cost of the scheme had figured largely in the debate at the recent Representative Meeting, but it was not intended to pepper England with primary health centres right away. He would be content to see a dozen such centres established within a reasonable time.

Dr. J. MIDDLETON MARTIN (M.O.H., Gloucestershire) gave an account of the experiment in his county. He said that while it was more or less a simple matter to provide in the towns the special services now required, the matter was more complicated in country districts. In Bristol, for example, there were 13,000 persons to the square mile, while in Gloucestershire, not one of the most sparsely populated counties, there were only 278. It was out of the question to provide special services adequately for a scattered population on the same lines as one could do it for a compact population. Then the question of a general practitioner came in; it was going to be a disastrous thing for the medical profession if continually certain branches of work were taken away from the general practitioner, and this would not be a good thing for the community either, because the preventive side of public health required a knowledge of the circumstances of the local community and the homes of the people; and who possessed this knowledge to the same extent as the general practitioner? Therefore his aim in Gloucestershire had been to bring the general practitioner into relation with what Lord Dawson's report called primary health centres. The attempt was made to develop the present communal services into one recognised centre where the local practitioners could deal with the cases. The services in question were mainly out-patient services, but a certain number of beds were also wanted. He was now engaged in trying to discover the most suitable

places for such out-stations. The stations would be of a very simple character, but such as to lend themselves to development. The direction of these centres was an important consideration. There had been complaint in the past that medical schemes were under lay direction. Medical matters were so technical that there must be medical direction of such services, and from a plan already in operation in Cheltenham he had conceived the idea of setting up a medical advisory committee, composed, in the case of Gloucestershire, of the general practitioners in charge of the out-stations and the consultants at the hospitals. All medical matters would be referred to that committee, which would be the governing body in medical matters. He did not suggest that all difficulties had been overcome, but sufficient advance had been made to prove the practicability of the idea. As for finance, the complete scheme was not too expensive to be carried out at the present time. The money had been found in Gloucestershire by pooling the sums available for the separate schemes, and in this way sufficient money was found without increasing the estimates.

Dr. MARCUS MILLIGAN (Bath) suggested that in each area, in association with the scheme, there should be formed a local guild of preventive medicine or guild of health, a body whose function would be the collective study of all health matters, as well as health propaganda. All the general practitioners and consultants in the area would be included in the guild, as well as such persons as certifying factory surgeons, the public analyst, some representative of the education authority, members of the dental profession, and also veterinary surgeons, the last in view of the way in which animals communicated disease.

Dr. H. C. BRISTOWE (Wrington, Somerset) spoke of the difficulties in the more sparsely populated rural areas, where the means of communication were mostly not main roads or railways but winding lanes, and the population scattered in small villages, none of them with more than 800 inhabitants, with hamlets and solitary houses in between. Practitioners engaged in work in these districts had not time to go a further five or ten miles to attend the primary health centres in a neighbouring town or larger village. He pleaded for smaller centres, less ambitiously equipped, and distributed more frequently in the sparsely populated districts.

Dr. R. H. NORGATE (Bristol) asked what provision it was proposed to make for chronic cases, such as spinal disease. They all knew in private practice that there were a number of people who could not earn their living and were a burden on their families. What was it proposed to do, if anything, for these?

Dr. WILLIAM GORDON (Exeter) said that his first acquaintance with the scheme inclined him to destructive criticism, but Lord Dawson by his advocacy and Dr. Middleton Martin by his practical experiment had established a case for the primary centre. They were countering the tendency to set up whole-time services, and were restoring to the general practitioner what he ought not to have lost; that was so much to the good. But the scheme as it stood on paper suggested that there was going to be undue interference from the secondary and teaching centres with the general practitioner, and this he would deprecate. Mutual counsel and help there should be, but as little interference as possible. He hoped also that it would not be laid down that those in charge of these centres should keep elaborate routine records. This would interfere with the time available for the care of the patient. Whatever records were kept should be of the simplest kind. Then he thought that the recurring expression "team-work" was unfortunate. The profession in England had been made great by reason of its individuality, and the individualism of English medicine should be most sedulously preserved. After all, the highest human achievements were individual, not the work of a team. The speaker uttered a threefold warning. First, against hustling; secondly, against too much attention to what Labour people were thinking, as Labour showed a disposition to meddle in subjects which it did not understand; thirdly, against the German tradition which magnified equipment at the expense of genius.

Dr. G. T. MYLES (Clifton), while admiring the report as a whole, thought that to express unqualified approval at this stage might mean the handing over by the profession of a blank cheque to the State. The success of the scheme depended entirely on the wholehearted support of every section of the profession, and if very much new work was put upon the profession an adequate remuneration must be given; with this subject the report did not deal. He thought that it would be possible to erect through this scheme with its primary centres nothing less than a whole-time service State-controlled.

Dr. NEWMAN NEILD (Clifton) said that in all schemes for the health of the people there were two possible methods. One was to let the Government put down the money first; certainly no great improvement in the health of the community had ever been gained by that method. The other was to start by stimulating the enthusiasm of the profession, so that it did the pioneer work and left the matter of payment until later; and that was the way in which advance in medicine had always been gained. He did not think the scheme would mean any hardship for the general practitioner; the only people who need complain, so far as he could see, were the consultants. What some of them were afraid of was that certain lines of research and methods of treatment would be forced upon them, whereby a free and untrammelled individualism would be lost.

Dr. L. S. LUCKHAM (Salisbury) said that he came from a city of some 25,000 people, with a large country district contiguous, the latter containing villages of 200 or 300 inhabitants. It was very difficult to establish primary health centres which would meet the case of such a district. The most valuable thing would be to combine the county hospital with the primary centre, the two working together. He rather thought it had been forgotten that a great deal of hospital accommodation was taken up because homes were not suitable even for minor cases of illness.

Dr. E. J. MACLEAN (Cardiff), speaking as a member of the Welsh Consultative Council, said that there appeared to be some misapprehension with regard to the status of the Councils. They were advisory to the Minister and in no sense intended to replace the organised bodies of the profession. There was nothing in these councils which would interfere with the status of the British Medical Association. So far from having its functions replaced or undermined, the Association should be strengthened and made still more representative. The movement to bring the profession under State control was very active. Many people felt that in view of the administrative power which the profession possessed some such control was necessary, and the maximum amount of it would be gained through a State medical service. Turning to the reports of the English and Welsh Consultative Councils, he said that if they did in large part agree it was not the result of collusion, for the Welsh Council had deliberately kept away from the English body in order that the problems might be approached with an unbiassed mind. The Welsh Council was composed not only of members of the medical profession but of representatives of various public authorities, whose criticism was available on points as they arose. The Principality was compact, and thus visits could be paid to representative areas—that is, purely rural areas, mixed areas, and densely populated industrial areas—and certain principles had been applied as the result of their acquaintance with those three sets of conditions. The present stage, he thought, was not one for much criticism, but there would come a time when very critical and contentious issues would have to be faced.

Dr. C. E. S. FLEMMING (Bradford-on-Avon) said that the profession had had placed within its grasp what it had been fighting for for years—namely, the opportunity to do its work properly. But there was a fear that the independence of the individual practitioner was threatened, and, while independence from every sort of control was impossible, it should be limited to intra-professional control. With regard to the relation of the general practitioner to preventive medicine, he would like to see every medical man given more powers approximating to those of a medical officer of health—powers to advise, report, and suggest—because no man was better able to make an effective medical officer of health than the general practitioner. The primary health centre was the ordinary development of institutions and work already in existence.

The PRESIDENT, in closing the discussion, conveyed to Lord Dawson the thanks of the branch, and said that the views expressed might be summed up in the view that the profession feared organisation being imposed upon it from without, and believed that the best way to meet the situation was to coördinate its work and prove its statesmanship.

Lord DAWSON, in reply, considered that the Consultative Council in no way usurped the present means of communication of the views of the profession. At the same time it did offer a nexus between the profession and the Minister. The Council, although nominated by the Minister, was absolutely independent. There seemed to be a fear amongst some speakers of the danger of State service or State control. But where some had pointed to individualism he saw only intellectual anarchy. If by individualism was meant absence of all control that was something which would not be good for the profession, and something which the community was not in the least likely to concede. He had to remind them again that State service was now coming. Various instalments of State service had already been set up. The report of the Council was not making for State service; it was the sole alternative. He agreed with what had been said about the dangers of bureaucratic control, but he had found no responsible person in the Government or Ministry of Health eager for such control. There would be no cast-iron health service organised from Whitehall. The Ministry of Health would be the inspirer, controller, and coördinator—that was all. He took it that subject to certain broad principles there would be considerable difference of detail in the various areas. Whatever the constitution of the local

health authority, they claimed that the medical profession as such must be represented upon it. A few broad-minded medical men would have an influence on such an authority far beyond their numbers. The majority of members must be elective, but in the coöpted minority the profession claimed to have a strong voice. He agreed that the profession must be adequately remunerated, but it would be a mistake to let it be supposed that pecuniary considerations occupied all their thoughts. He believed the general effect of a properly organised system would be to enhance the pecuniary position of the men who practised under it, and he did not believe that in most instances it would increase their work, although it would add enormously to the interest of the work.

Lord Dawson concluded by sympathising with the criticism which had come from sparsely populated areas, and said that the question of subcentres, and also of ambulances, had been considered by the Council, but had not yet reached the stage of definite proposals, in a report which was an interim document capable of indefinite adaptability. He deprecated the remarks of Dr. Gordon on the subject of Labour, as most intelligent views had been forthcoming from that quarter, and if a broad-minded scheme were hammered out he was sure that Labour would offer most unprejudiced assistance.

ROUMANIA.

(FROM OUR OWN CORRESPONDENT.)

Influenza Complicating the Ear and Upper Air Passages.

IN the spring of this year severe influenza epidemics have occurred in several parts of Transylvania, the numbers of cases even surpassing those of 1918. Dr. Muntean has studied the complications of ear and upper air passages and has just published a concise report. He considers first the relation of influenza to the ear, and states that it may affect either the inner ear, of the diseases of which little is known, or the middle ear, involving either the drum membrane alone or the entire middle ear—as first described by Dr. W. Hitschler in America. The disease differs from the ordinary otitis media in that in the early stages of the condition there is a marked tendency to hæmorrhage, which may be observed as punctate or diffuse ecchymoses on the tympanic membrane, or as bloody vesicles raised from its surface, sometimes extending beyond the membrane itself, and involving the postero-superior wall of the external auditory meatus. The pain is more severe and is more likely to be present on pressure over the mastoid, and the symptoms of tinnitus, deafness, and discharge are intensified. The mastoid is much more likely to be involved than in other conditions, and the external attic is often the subject of purulent inflammation. The diagnosis between this condition and severe simple acute inflammation is very difficult; the prognosis is less good, and the tendency to chronicity greater than in the latter. In the upper air passages, in addition to the usual catarrhal signs, there are frequently whitish-grey patches, due to necrosis, on the larynx and trachea. Hæmorrhage, in the shape of epistaxis or hæmorrhagic laryngitis, œdema of the larynx and pharynx, and abscesses of the larynx and thyroid gland have also been observed. The recurrent laryngeal nerve is frequently affected, and paresis of the soft palate is among the nervous symptoms. Dr. Muntean refers in his report to the tendency to sinus diseases in these cases, and also to the fact that, though many cases recover, there are a certain number which result either in chronic sinusitis or in a transmission of the infective process to the orbital or cranial cavities, with occasional fatal termination. A meningitis can be caused by an acute empyema of an accessory sinus; too often the ætiology is unsuspected, and it is forgotten that such cases are likely to occur in acute exacerbations of a chronic sinusitis brought about by some infective process such as influenza.

A Case of Chlorate of Potash Poisoning.

Dr. Papp reports an interesting case of poisoning from chlorate of potash. The patient, a woman, aged 32 years, purchased from a druggist a bottle containing 60 g. of chlorate of potash. Though the printed directions were to dissolve 1 tablespoonful in 1 kg. of water, the patient used the entire 60 g., and occasionally swallowed some of the solution. After finishing the bottle the patient complained of itching, and after four days her thighs, legs, ankles, forearms, wrists, and trunk were seen to be covered with innumerable reddish macules. There were also numerous petechiæ. There was no nausea, diarrhœa, or headache. The patient made a slow but uneventful recovery.

Radium in Cancerous Growths.

Dr. Offner recently showed five patients before the Medical Society of Bucharest, two having a cancerous ulcer at the inner angle of the right eye. The treatment began February, 1919; weekly sittings; duration one hour. The bromide of radium was used; improvement was noticed in both cases after every application. For some reason one of the patients discontinued treatment after six weeks, with the result that the condition became worse, and the edges of the ulcer, which were in a fair way of cicatrisation, reopened. Treatment was resumed, with the result that the ulcer, which had obstinately resisted treatment for five years, now healed completely. The third case was that of a cancer of the lip; treatment with radium resulted in a marked improvement. The fourth case was a cancer of the penis; result unsatisfactory on account of repeated attacks of pneumonia in an aged patient. The fifth case was that of a cancer of the breast, for which the patient was operated on twice—nine and three years ago. In this case applications were made three times a week, and after 26 sittings the tumour seems to have disappeared. The patient has regained perfect control of the shoulder-joint; the tumour was located under left clavicle.

Nervous Debility among the Working-classes.

Excellent facilities for the study of this subject are presented in one of the largest workmen's sickness insurance clubs, and Dr. Oltmann and Dr. Meer have recently made observations on the question. It was formerly believed that nervous debility was relatively rare among this class, but this conception must now be revised. The greater incidence may, of course, be due to the fact that the lower classes are now under more systematic medical observation—at least in Transylvania—than formerly, but the previous observers are rather inclined to the belief that it is produced by our changed social conditions. The work itself and the conditions under which it is performed are different, and are characterised either by greater excitement or by extreme monotony. The struggle for existence often induces longer hours of work, and another important rôle is played by the disparity which exists between the intellectual equipment of the workmen, especially in larger cities, and the small claim made thereon by their work. Thus the typesetters, often fairly well educated, pursue an occupation which is not only fatiguing but monotonous. Among workmen where manual labour is of such a nature as to be productive of some degree of enjoyment neurasthenic conditions are rarely to be found. The majority of cases were noted between 25 and 45 years of age—the age of introspection.

Typhoid Fever Epidemic in Children in Bessarabia.

In September, 1919, a localised typhoid fever epidemic broke out in three or four districts of Bessarabia, and Dr. Slivensky publishes now some remarks on the 210 cases observed by him. He says that his cases seemed to show a relation between vomiting and hæmorrhage; especially in cases in which vomiting existed from the first was hæmorrhage apt to occur. The appearance of the stools in very young children was not so characteristic as in adults, though in older children pea-soup stools often occurred. A preliminary constipation was shown to have no evil significance, as has sometimes been claimed. Rose spots occurred in 54 per cent. of all cases, and herpes in eight cases, though several of these had complications. The average duration of the fever was 14½ days, a much

shorter period than is usual in the adult. The usual parallelism between the pulse and the temperature was not present in very young children. The characteristic leucopenia was present, and the Widal reaction occurred in nearly all cases where it was tried sufficiently late. Relapses in children, especially in girls, were more frequent than in adults. The mortality in Dr. Slivensky's cases was 9·6 per cent., and was much more frequent in relapses than in original attacks. Bad hygienic conditions conduced generally to fatality.

Plague Epidemic in Constantinople.

On account of the great number of cases of plague in Constantinople the Bucharest Government has officially declared the disease epidemic in Constantinople. Passenger traffic and goods transport can be passed only through the Sulina Port, where every person arriving has to be quarantined for eight days.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Medical Strikes in Sickness Insurance Clubs.

THE economic fight between the profession and the sick clubs, or Krankenkassen, as our official compulsory panel clubs are termed, is going on constantly in spite of the nearly uniform outcome—victory of the profession. The clubs are, as a rule, not willing to give in voluntarily, but after a while they are compelled to do so. In a recent protracted and obstinate dispute in Salzburg the whole profession refused to treat the panel patients under the whole conditions; after five weeks the managing board of the Krankenkassa accepted the conditions of the profession—that is, 100 per cent. increase of rate of payment per visit, not per head as hitherto, also payment of rent and for mileage. During the dispute the patients of the club were treated on the same lines as private patients, and the club had to refund to its members their expenditure, which proved nearly ruinous to its funds. The outcome of this "strike" served not only as a stimulus to the profession in other districts, but also helped materially in the negotiations between the Government and the profession going on at present. It is intended to solve the question of adequate payment of medical work, having regard to the legitimate demands of the working-class. As the income of the latter has risen much above that of brain workers, the doctors as brain workers endeavour to admit only persons to the sick clubs whose income does not exceed a certain sum. Otherwise, private practice would actually disappear. It is, therefore, very important that the Government should learn by such a demonstration that the profession is capable of using its power if required.

Gratuitous Treatment in Out-patients' Departments.

A serious problem has been attacked by the Medical Organisation Committee of Vienna at a meeting dealing with the organisation of general and special hospitals. Owing to the enormously increased cost of running the hospitals, the treatment of other but really poor patients constitutes a serious loss of public money. Also, the profession loses large sums in the shape of fees by the fact that a large number of patients capable of paying are still directed by their medical advisers to hospitals, instead of being sent to private specialists. In an appeal to all practitioners, these facts are made clear and they are requested to abstain from helping abuse. At the same time they are furnished with a complete list of recognised specialists, so that they can select the man they deem best fit for their purpose. On the other hand, all specialists attending or controlling the out-patient departments are requested to be most careful in extending their help only to such patients as can satisfy them as to their real poverty. Stress is laid on the fact that all persons in public or municipal service should be excluded from gratuitous treatment in hospitals, as these corporations are bound to obtain medical help for their officials. Payment from out-patients should be accepted only in special instances, and only at the same rates as are demanded in private cases. The appeal mentioned above is being sent to all country doctors as well as to the directors of the minor hospitals of the provinces, and it is hoped that reasonable self-interest, as well as professional spirit, will bring about the required uniformity of action.

Dangerous Dyes in Black Cotton.

At a recent meeting of the Medical Society of Vienna Dr. Sachs demonstrated an excised forefinger (index) of a woman who had injured it some time ago with a thread of black cotton imported from Italy. Soon after this slight injury the finger became sore, boils and bullæ appeared, and ulceration ensued in spite of regular treatment. Necrosis followed, and the finger had to be excised. Examinations by bacteriologists and chemical exports showed that micro-organisms were not the cause of the pathological changes (only staphylococci were found), but that the chemical dye used in the process of manufacturing the cotton was responsible. The dye is known as "iceblack," a coal-tar dye; its necrosing effect was noticed some time ago, and is similar to the evil effects of the dye, with which the so-called ink pencil is charged. Special precautions in the process of colouring of industrial articles are therefore being urgently advocated.

Vienna, July 9th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Anti-hookworm Campaign.

THE Bengal Government have issued a review of the work of the anti-hookworm campaign in Bengal. Inquiries having shown the prevalence of hookworm infestation among the people of Bengal, the Government, towards the end of 1918, called together a conference of the Sanitary Board, members of District Boards, and representatives of jute and coal industries and other interests, and invited their advice as to the measures to be taken to fight against the disease. In accordance with the recommendations of the conference, Government appointed three special officers with subordinate staff to supervise and direct all operations. A year has now passed since their appointment; work was at first impeded by ignorant suspicion on the part of the natives, who imagined that it was part of the insidious scheme connected with the Rowlatt Act, and that persons suffering from disease would be discharged. This prejudice was gradually overcome and a high ratio of infestation has been detected, the percentage in one month being 75 in one mill and 92 in another. In another mill, of skilled artisans who mostly wore boots, 35 per cent. were found to be infected. During the first four months of this year 3112 persons were examined and 8·5 per cent. were found infected. Arrangements have now been made by the Anglo-Indian Jute Mill for work to be carried on by a special officer. Training has been given to subassistant surgeons of the Bengal-Nagpur Railway and the ordnance factories at Cossipur, Ishapor, and Dum Dum. The chief medical officer of the Eastern Bengal Railway is arranging for all sub-assistant surgeons in railway hospitals to be trained. The aim from the first has been to utilise Government staffs for the work and for training the local staff, so that the managing authorities of different concerns may take up anti-hookworm work themselves. It is impossible for Government to open laboratories at all the centres where they are needed, so those who will benefit most provide them at their own expense. In order to diffuse a knowledge of the disease, charts have been supplied to schools, for it has been realised that propaganda is the only way to make the people realise the seriousness of the disease. Persons suffering from hookworm, if willing to submit themselves, may be treated by trained assistant surgeons. Nearly a hundred different lantern slides illustrating the life-history of the hookworm and various aspects of preventive work have been prepared, and have been issued to various centres of work and to local authorities and

others interested in the campaign. The extension of the movement has, however, been impeded by difficulties in obtaining supplies of microscopes and other apparatus.

The Housing Problem in Calcutta.

At present the chief obstacle in the expansion of Calcutta is the difficulty experienced by building societies and companies in obtaining land and securing a firm title. It is evident that private enterprise is willing to take up the matter provided land can be obtained, so Government have decided to acquire land under the Land Acquisition Act on the behalf and at the expense of the companies.

The Leper Problem.

A gratifying feature of the report of the Mission to Lepers is the announcement of substantial subscriptions from Indian ladies and gentlemen. The need for asylums is great, as there are 150,000 lepers. Hitherto the funds have all come from England, but efforts to obtain money from the Indian public have met with great success recently. The whole population is concerned in the matter, as the pauper lepers are a serious menace to the community. This menace will be met if the Bill to amend the Leper Act becomes law and is efficiently administered.

Indian Hospital Corps.

With the approval of the Secretary of State an Indian Hospital Corps has been formed. It will combine with the Army Bearer Corps, the Army Hospital Corps, and all subordinate personnel of Indian station hospitals. The corps will consist of 10 divisions, corresponding to the divisions in India and Burma, the requirements of the frontier coming from No. 1 Company, those of Aden from No. 6 Company. Each company so formed will be administered by the D.D.M.S. or A.D.M.S. of the division concerned, and will be under the immediate command of an officer of the medical services, who for purposes of discipline and finance will be the commanding officer of the company.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments have been made:—Surgeon Commanders: E. C. Sawdy, to *Victory*, for Royal Naval Hospital, Portland; G. Gibson, to *Indus*, and K. H. Hole, to *Royal Arthur*; H. J. Chater and R. W. B. Hall, to *President*, additional, for temporary service at Medical Dept. and as assistants to M.D.G; and E. R. Townsend, to *Dolphin*.

Surg. Rear-Admirals G. T. Broatch, W. J. Colborne, and J. H. Stenhouse are placed on the Retired List at their own request.

Surg. Capt. G. T. Collingwood to be Surgeon Rear-Admiral.

ROYAL ARMY MEDICAL CORPS.

Major W. F. H. Vaughan is placed temporarily on half-pay on account of ill-health contracted on active service.

To be Captains:—Capt. C. C. G. Gibson (late R.A.M.C.), Temp. Capt. C J. R. Hay, from Special Reserve. Captains, from Special Reserve: C. Armstrong, W. H. Dye, N. Cameron, J. Cullenan. Temporary Captains: A. W. Dennis, G. Fleming, K. M. Nelson, A. C. Taylor.

H. Cardin, late temporary Captain, to be temporary Captain.

Captains, from Special Reserve, to be Lieutenants, and to be temporary Captains: W. I. FitzG. Powell, W. O. Holst.

Capt. D. W. M. Mackenzie, late R.A.M.C., Special Reserve, and Hon. Capt. C. A. Hutchinson to be Lieutenants and to be temporary Captains.

Temp. Hon. Lieut. W. N. Richards to be temporary Honorary Captain.

Officers relinquishing their commissions:—Temp. Capts. (Acting Major) L. J. Spence and A. Fletcher (granted the rank of Major). Temporary Captains retaining the rank of Captain: D. McLaren, J. Buchanan, J. R. Fleming, L. D. Roberts, A. Vella, G. C. Berg, C. R. Worthington, W. L. Johnston, T. H. Edey, G. Taylor, G. O. Hempson, A. B. Coomber, D. J. Stokes, H. A. Whyte-Venables, P. H. Henson.

SPECIAL RESERVE OF OFFICERS.

Capt. P. W. Mathew relinquishes his commission and is granted the rank of Major.

Captains relinquishing their commissions and retaining the rank of Captain: P. N. Cook, W. Burridge, N. D. Ball.

TERRITORIAL FORCE.

Major (Bt. Lieut.-Col.) A. B. Harris resigns his commission and retains his rank, with permission to wear the prescribed uniform.

Capt. P. H. Mitchiner is seconded.

Capt. D. J. Scott resigns his commission and is granted the rank of Lieutenant-Colonel.

Capts. C. P. Brentnall, W. B. Keith, and J. R. B. Russell resign their commissions and are granted the rank of Major.

Capts. F. Tooth, C. Hibbert, L. Courtauld, W. T. Torrance, and W. R. H. Heddy resign their commissions and retain the rank of Captain.

TERRITORIAL FORCE RESERVE.

Surg. Major W. H. Cheetham (Yeomanry) resigns his commission and retains the rank of Surgeon Major, with permission to wear the prescribed uniform.

Capt. S. E. Whitnall resigns his commission and retains the rank of Captain.

INDIA AND THE INDIAN MEDICAL SERVICE.

Col. P. Carr-White to be Major-General.

Capt. E. G. Kennedy relinquishes the acting rank of Lieutenant-Colonel.

Dr. W. O'Brien Beadon, Principal of the Women's Medical College, Agra, goes on nine months' furlough. During her absence Dr. G. J. C. Campbell, W.M.S., will officiate. The services of Lieut.-Col. G. Tate are temporarily placed at the disposal of the Political and Foreign Department. Major J. G. G. Swan is officiating as Civil Surgeon, Lahore, and acting as Professor of Midwifery at the Medical College, in addition to his own duties. Col. L. J. M. Deas has been posted as Civil Surgeon, Ajmer, and Chief Medical Officer in Rajputana. Lieut.-Col. E. L. Perry has been posted to Madras. Major D. P. Gort, Civil Surgeon, Rajshahi, has been allowed privileged leave. Major J. T. Parkinson has been placed on the supernumerary list, but will continue to act as Assistant to the Civil Surgeon, Mussoorie. Lieut. F. W. Mathews, Superintendent, Central Prison, Naini, Allahabad, is appointed Civil Surgeon, vice Major Hogan, Civil Surgeon, placed on the supernumerary list, but will continue to act as Superintendent, Central Prison, Naini, Allahabad. Capt. P. B. Mills has been appointed Civil Surgeon, vice Capt. Robertson, relieved, but will continue to act as Superintendent, Central Prison, Fategarh. Capt. R. Hempbell, R.A.M.C., has been appointed to hold Civil Medical Charge of Raniket, vice Lieut.-Col. A. T. I. Lilly, R.A.M.C., in addition to his own duties.

DEATHS IN THE SERVICES.

Inspector-General of Hospitals Sir James Nicholas Dick, K.C.B., R.N., honorary surgeon to the King, at his residence, Bembridge, Isle of Wight, on July 12th, aged 89. As Assistant Surgeon during the Russian war in 1854–55 he served in the *President*, the flagship of Rear-Admiral Price, and was present at the attacks on Petropaulovski on August 31st and Sept. 4th, 1854, when he was specially mentioned for his care of the large number of wounded. Later, as surgeon, he served on the West Coast of Africa and as senior medical officer in charge of the naval forces and Indian troops. He was also senior naval medical officer during the Abyssinian war, 1867–68, and for his services was specially promoted to the rank of Fleet-Surgeon (Abyssinian medal). During the Civil War in Spain, when Fleet-Surgeon of the *Lord Warden* flagship, in 1873, he proceeded into Cartagena during the bombardment as a volunteer to assist the wounded, and received from the Admiralty an expression of their high estimation of the zeal, energy, and skill shown by him in the performance of his duties in connexion with the R.N. Hospital, Malta, of which he was the principal officer during the Egyptian campaign, 1882. On the occasion of the celebration of the completion of the fiftieth year of Queen Victoria's reign he received the C.B. and was Director-General of the Medical Department of the Navy from 1888 to 1898. He became a K.C.B. in 1893.

URBAN VITAL STATISTICS.

(Week ended July 10th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had declined from 13·8 to 9·9 in the eight preceding weeks, was again 9·9 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 9·6, or 0·6 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 4·5 in Rotherham, 5·1 in Croydon and in Swindon, and 5·2 in Wimbledon and in Edmonton, to 16·9 in Swansea, 17·0 in Burnley, and 19·7 in Wigan. The principal epidemic diseases caused 192 deaths, which corresponded to an annual rate of 0·6 per 1000, and comprised 71 from infantile diarrhœa, 48 from measles, 31 from diphtheria, 22 from whooping-cough, 14 from scarlet fever, and 6 from enteric fever. Measles caused a death-rate of 1·8 in Northampton and in Wigan, but the mortality from the remaining diseases showed no marked excess in any of the towns. There were 1755 cases of scarlet fever, 1599 of diphtheria, and 2 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1705, 1603, and 3 respectively at the end of the preceding week. The causes of 33 of the 3367 deaths in the 96 towns were uncertified, of which 4 were registered in London and 3 in Birmingham.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 13·3, 11·5, and 11·1 in the three preceding weeks, rose to 12·1 per 1000. The 227 deaths in Glasgow corresponded to an annual rate of 10·6 per 1000, and included 8 from infantile diarrhœa, 6 from measles, 2 from whooping-cough, and 1 each from enteric fever, small-pox, scarlet fever, and diphtheria. The 84 deaths in Edinburgh were equal to a rate of 12·8 per 1000, and included 3 fatal cases of diphtheria.

Irish Towns.—The 113 deaths in Dublin corresponded to an annual rate of 14·2, or 0·9 per 1000 above that recorded in the previous week, and included 5 from whooping-cough and 3 each from measles and infantile diarrhœa. The 104 deaths in Belfast were equal to a rate of 13·1 per 1000, and included 5 from infantile diarrhœa, 2 from whooping-cough, and 1 from enteric fever.

VITAL STATISTICS OF LONDON DURING JUNE, 1920.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 6·0 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding months the rates had been 7·1, 6·7, and 6·3 per 1000. Among the metropolitan boroughs the lowest rates from these diseases last month were recorded in Kensington, Hampstead, Stoke Newington, the City of London, Battersea, and Camberwell; and the highest in Finsbury, Shoreditch, Bethnal Green, Stepney, and Poplar. The prevalence of scarlet fever was slightly greater than in the preceding month; this disease was proportionally most prevalent in Chelsea, Hackney, Shoreditch, Bethnal Green, Stepney, and Poplar. The Metropolitan Asylums Hospitals contained 1674 scarlet fever patients at the end of the month, against 1981, 1795, and 1671 at the end of the three preceding months; the weekly admissions averaged 251, against 240, 223, and 228 in the three preceding months. Diphtheria was somewhat less prevalent than in the preceding month; the greatest prevalence of this disease was recorded in Paddington, St. Pancras, Shoreditch, Bethnal Green, Poplar, Deptford, and Greenwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1964, 1937, and 1783 at the end of the three preceding months, further fell to 1590 at the end of June; the weekly admissions averaged 189, against 260, 221, and 214 in the three preceding months. The prevalence of enteric fever was slightly less than in the preceding month; of the 31 cases notified during the five weeks ended July 3rd, 6 belonged to Wandsworth, 3 to Stepney, 3 to Poplar, and 2 each to Kensington, Hammersmith, Fulham, St. Marylebone, and Islington. There were 19 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 38, 29, and 18 at the end of the three preceding months; the weekly admissions averaged 3, against 6, 4, and 3 in the three preceding months. Erysipelas was proportionally most prevalent in Paddington, St. Marylebone, Finsbury, Bethnal Green, Poplar, Southwark, and Woolwich. The 11 cases of cerebro-spinal meningitis included 3 in Stepney and 2 in Wandsworth, while the 3 cases of poliomyelitis belonged respectively to Islington, Holborn, and Finsbury. The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ended July 3rd the deaths of 4259 London residents were registered, equal to an annual rate of 10·3 per 1000; in the three preceding months the rates had been 17·6, 15·4, and 12·4 per 1000. The death-rates ranged from 8·0 in Woolwich, 8·3 in Chelsea, 8·7 in Hammersmith, 8·8 in Wandsworth, and 8·9 in St. Pancras, to 11·5 in the City of Westminster, 11·6 in Islington, 11·8 in Southwark, 12·0 in the City of London, 12·6 in Finsbury, and 13·7 in Holborn. The 4259 deaths from all causes included 273 which were referred to the principal infectious diseases; of these, 66 resulted from measles, 10 from scarlet fever, 65 from diphtheria, 48 from whooping-cough, 4 from enteric fever, and 80 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in Holborn. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in St. Marylebone, Stoke Newington, Wandsworth, Deptford, and Lewisham; and the highest in Chelsea, Finsbury, Shoreditch, Poplar, and Battersea. The 66 deaths from measles were 76 below the average number in the corresponding period of the five preceding years; this disease was proportionally most prevalent in Chelsea, the City of London, Southwark, Bermondsey, and Battersea. The 10 fatal cases of scarlet fever were 3 fewer than the average. The 65 deaths from diphtheria exceeded the average by 22; the greatest proportional mortality from this disease occurred in Fulham, Islington, Finsbury, Shoreditch, and Poplar. The 48 fatal cases of whooping-cough were 26 fewer than the average; this disease was proportionally most fatal in Paddington, Hampstead, Bethnal Green, Poplar, Camberwell, and Greenwich. Four deaths from enteric fever were registered during the month, against an average of 8; of these deaths, 2 belonged to Stepney. The 80 fatal cases of infantile diarrhœa were 20 in excess of the average; the greatest proportional mortality from this disease occurred in Chelsea, Islington, Finsbury, Shoreditch, Poplar, Southwark, and Lambeth. In conclusion, it may be stated that the aggregate mortality in London during June from these principal infectious diseases was 19·7 per cent. below the average in the corresponding period of the five preceding years.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1920.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.								Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,358,309	—	1254	972	—	31	1	30	191	11	3	2493	6·0	—	66	10	65	48	4	80	273	0·7	4259	10·3
West Districts:																								
Paddington	143,938	—	18	37	—	1	—	1	10	—	—	67	4·9	—	4	—	1	3	—	3	11	0·8	132	9·6
Kensington	157,886	—	37	26	—	2	—	1	4	—	—	70	4·6	—	3	1	1	—	—	3	8	0·5	159	10·5
Hammersmith ...	130,981	—	30	27	—	2	—	—	4	—	—	63	5·0	—	1	—	1	1	—	3	6	0·5	109	8·7
Fulham	152,543	—	51	25	—	2	—	2	9	1	—	90	6·2	—	1	—	5	2	—	3	11	0·8	152	10·4
Chelsea	60,573	—	22	7	—	—	—	1	3	—	—	33	5·7	—	2	1	1	—	—	2	6	1·0	48	8·3
City of Westminst'r	127,533	—	40	19	—	1	—	—	5	—	—	65	5·3	—	1	1	—	—	1	2	5	0·4	141	11·5
North Districts:																								
St. Marylebone ...	97,953	—	30	10	—	2	—	—	7	—	—	49	5·2	—	1	—	1	1	—	—	3	0·3	97	10·3
Hampstead	88,012	—	27	6	—	—	—	—	3	1	—	37	4·4	—	1	—	—	3	—	—	4	0·5	84	10·0
St. Pancras	219,434	—	61	61	—	—	—	1	8	—	—	131	6·2	—	1	1	3	1	—	3	9	0·4	188	8·9
Islington	323,034	—	57	85	—	2	—	—	13	1	1	159	5·1	—	5	—	11	3	—	8	27	0·9	360	11·6
Stoke Newington...	50,954	—	7	10	—	—	—	—	3	—	—	20	4·1	—	1	—	—	—	—	—	1	0·2	46	9·4
Hackney	216,736	—	77	34	—	1	—	2	2	—	—	116	5·6	—	2	—	4	2	—	4	12	0·6	192	9·2
Central Districts:																								
Holborn	38,156	—	13	5	—	—	—	—	—	1	1	20	5·5	—	—	—	—	—	—	—	—	—	50	13·7
Finsbury	75,291	—	12	19	—	1	—	—	18	—	1	51	7·1	—	1	—	4	—	—	2	7	1·0	91	12·6
City of London ...	13,893	—	—	2	—	—	—	—	—	—	—	2	1·5	—	1	—	—	—	—	—	1	0·8	16	12·0
East Districts:																								
Shoreditch	98,134	—	46	42	—	—	—	—	4	—	—	92	9·8	—	—	—	4	1	—	4	9	1·0	104	11·1
Bethnal Green ...	110,085	—	74	44	—	1	—	—	9	—	—	128	12·1	—	3	—	1	3	—	—	7	0·7	110	10·4
Stepney	232,506	—	103	53	—	3	—	1	9	3	—	172	7·7	—	5	1	3	4	2	5	20	0·9	245	11·0
Poplar	153,644	—	64	44	—	3	—	4	10	—	—	125	8·5	—	4	—	3	7	—	9	23	1·6	161	10·9
South Districts:																								
Southwark	179,971	—	57	36	—	—	—	3	12	—	—	108	6·3	—	6	—	3	1	—	5	15	0·9	203	11·8
Bermondsey	124,239	—	38	24	—	1	—	1	—	—	—	64	5·4	—	5	1	1	1	—	2	10	0·8	134	11·2
Lambeth...	282,322	—	80	71	—	1	—	5	11	1	—	169	6·2	—	6	1	2	2	—	7	18	0·7	305	11·3
Battersea	159,316	—	25	33	—	—	—	2	6	—	—	66	4·3	—	6	1	2	3	—	3	15	1·0	150	9·8
Wandsworth... ...	333,693	—	106	76	—	6	1	1	10	2	—	202	6·3	—	1	1	6	—	—	2	10	0·3	281	8·8
Camberwell	273,802	—	53	53	—	1	—	4	9	—	—	120	4·6	—	3	—	5	6	1	4	19	0·7	252	9·6
Deptford...	111,205	—	29	29	—	—	—	—	5	—	—	63	5·9	—	—	—	1	—	—	2	3	0·3	103	9·7
Greenwich	98,484	—	33	27	—	—	—	—	2	—	—	62	6·6	—	1	—	—	2	—	1	4	0·4	92	9·7
Lewisham	167,754	—	44	33	—	—	—	1	6	1	—	85	5·3	—	—	—	1	—	—	1	2	0·1	149	9·3
Woolwich	135,237	—	20	34	—	1	—	—	9	—	—	64	4·9	—	1	1	1	2	—	2	7	0·5	105	8·0
Port of London ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Correspondence.

"Audi alteram partem."

PELLAGRA.

To the Editor of THE LANCET.

SIR,—In an article on pellagra which appeared in your issue of May 8th last Dr. J. I. Enright criticises certain of the data and findings of the committee which, in 1918, investigated an outbreak of that disease amongst prisoners of war in Egypt. This reply, commenced long since and delayed by stress of military duty, is prompted by a wish to establish facts rather than to promote controversy. It is due, perhaps, to the present interest in this important subject; and certainly to the collaborators, especially Professor W. H. Wilson, with whom the "biological protein theory" of pellagra ætiology originated, who rendered Professor F. D. Boyd and me such invaluable aid in this investigation in Egypt.

The point at issue is, fortunately, quite definite. The committee's finding was that "lack of sufficient biological value of protein (in food) stands in ætiological relation to pellagra, certainly as an exciting factor and possibly as the determining factor. The deficiency ..... may be (*a*) absolute ..... or (*b*) relative, as determined by individualistic correlation between food assimilation and energy expenditure ..... ." Dr. Enright maintains that he finds evidence "sufficient to explode the food-deficiency theory as a predisposing factor" in the fact that pellagra occurred among German prisoners whose "diets both before capture and during their period of captivity ..... were ample, both in quantity and quality, for any possible requirements."

It is a matter of keen regret to the committee that, as the first German case occurred ten days after they had reported their findings and dispersed, they thus had no opportunity of investigating these cases. It is, however, possible to apply to the diets quoted the "critical analysis" which is invoked in support of the conclusion that they were in all respects adequate. Happily the critic himself supplies sufficient material to prove that they were not adequate.

(*a*) *The Pre-capture Diet.*

Full details of the diet quoted were obtained from one prisoner. As regulations prescribe that all prisoners must be deprived of all official papers as soon as possible it may be assumed that these details were given from memory, and are devoid of documentary confirmation. Dr. Enright lays stress upon the great intelligence of these German prisoners, but he pays that intelligence a doubtful compliment by supposing that they—longing for "the flesh-pots of Egypt," and being asked to compare their former and present diets—were likely to make any other reply than that they had been "living on the fat of the land." Which land? At that time the food shortage in Central Europe was acute; in Palestine the Turks were so underfed that from August to November, 1918, the rations of one unit provided an average of only 2214 calories per diem (documentary evidence); while, despite all our resources, we had to reduce the rations of our troops by 10 per cent. Yet we are seriously asked to believe that 7000 Germans, serving from front to base alongside half-starved Turkish armies with demoralised transport, in a land foraged during nearly four years of war, were receiving a daily *ration* containing (in addition to purchased eggs) protein averaging 168 g. and with an extraordinarily high maximum of 194 g., while all that we were then able to give our troops was 108 g. for Indian and 112 g. for European troops. Surely the faith in German veracity which can build a scientific argument upon such evidence as this is beyond the ordinary mortal. Upon closer examination the quoted ration bears intrinsic evidence of its own improbability; it is difficult to conceive that scientific Germans, late in the war, should include under one heading of alternative issues articles of such totally diverse values as cheese, butter, and jam.

Finally, Dr. Enright throws an interesting light upon his opinion that their diets "were ample ..... for any possible requirements" by mentioning that two of these German prisoners were found to be suffering from scurvy. It is certainly most remarkable that men receiving a daily ration of "453 g. fresh vegetables, or 226 g. of beans, peas, rice, or potatoes, and 350 g. fresh meat," supplemented as indicated by the statement that there was "certainly no lack of fresh fruit in Palestine and Syria during the enemy occupation," should develop scurvy. Among all the diseases which they might have got, these two cases were so inconsiderate as to acquire the particular one most fatal to the contention that they were perfectly fed. Criticisms which contain such conclusive evidence in their own despite must surely be rare.[1]

There are, however, few of the cases whose pre-pellagrous period of captivity is stated which require that a pre-capture food-deficiency, however probable, need be even assumed. From Dr. Goldberger's scientific experiment, and our experience in the outbreak of pellagra among Armenian refugees in Egypt, it appears legitimate to conclude that the antecedent food-shortage period coincided with that during which these German pellagrins were in captivity. The following table shows that this applies to 70 per cent. of the cases quoted:—

Month of captivity.	Onset of pellagra symptoms.	Month of captivity.	Onset of pellagra symptoms.
1st	No cases.	5th	13 cases } 70%
2nd	No ,,	6th	9 ,, }
3rd*	2 ,,	7th	5 ,,
4th	3 ,,		

* 3rd week.

We may therefore next consider the evidence advanced that the German prisoners' diets preclude the possibility of pellagra being due to protein deficiency.

(*b*) *Post-capture Diets.*

Dietaries of camps and hospitals require separate consideration. As Dr. Enright lays special stress upon the two cases from Maadi Camp, that issue is readily accepted first.

(i.) *In camps.*—This camp, situated amongst cultivated lands close to the Nile, was visited by the committee on Nov. 28th, 1918, with special reference to the fact that no German case had been reported there, while the adjacent Turks had provided 60 pellagrins in the preceding two months, thus providing the M.O.'s common to the two compounds with ample diagnostic experience. As no European case had occurred in Egypt when we wrote our report, we recorded our findings thus: "At Maadi over 2000 Germans, Austrians, and Bulgars have, for the last two years, occupied a compound immediately adjoining that occupied by some 6000 Ottomans. The occupants of both compounds have been living under similar conditions as regards water-supply and conservancy, equally exposed to biting insects and sunlight, and similarly protected against summer heat by matting sun-shelters, and against winter cold by two blankets and a great-coat per man. The only obvious difference was that of diet; the Ottomans lived upon their rations, while the Germans, being freely supplied with money through a consulate, supplemented their rations lavishly. During these two years no single case of pellagra had occurred among these Germans, Austrians, or Bulgars, nor was any suspicious case found on careful inspection by one of us (F. D. B.). This formed a most striking contrast to the 300 pellagra cases which had occurred during the present year from among the Ottomans—both Turks and Arabs—the great majority of whom had also been in captivity for long periods in this camp." I may add that Professor Boyd, whose diagnostic ability had been accentuated by great experience of pellagra in its very earliest stages, failed to find a single suspicious case in the sample batch (200, I think) of Germans examined there.

Careful investigation showed that practically the whole of the 2*s.* a day supplied to the Germans passed

[1] Since this was written this point has been anticipated by a communication, published in THE LANCET of July 3rd (p. 41), from Dr. J. Goldberger.

through the canteen accounts, and detailed study of those accounts provided the actual amounts of various foods sold. We were thus enabled to work out the *average* additions thus made to the ration. These diets may be thus compared:—

—	Protein.		Fats.	Carbo-hydrates.	Calories.
	B.V.P.*	Gross.			
Turks	39·1	92·0	27·55	515	2744
Germans, rations only	58·3	92·7	33·47	341	2087
,, rations and extras	89·7	144·3	120·67	458	3589

* B.V.P. is used here and subsequently as a useful abbreviation of "biological value of protein."

The Turks' unsupplemented ration afforded just under the "B.V.P." minimum of 40 g. per diem, as laid down by Professor Wilson. They became pellagrous in many instances.

The criticism regarding the German cases rests upon the assumption that their ration provided an adequate amount of protein, if any of them lived upon it alone. It is not easy to understand a critic missing the cardinal essentials underlying the word "relative" applied in our report to food deficiency. It appears strikingly obvious that—no matter what the protein intake may be—the tissues must suffer deficiency if their needed amino-acids fail to reach them because of being spent to make good a deficit in the total energy balance-sheet; income which is spent, as soon as received, on debt reduction will not serve to keep the recipient from starvation. The German ration provides 133 calories less than the 2200 daily expended by the average man "at rest"; that deficit is balanced by combustion of 32·4 g. of assimilated protein; the "B.V.P." available for supplying the tissues with amino-acids is thus reduced from 58·3 to 40·9 g. daily. This affords so slight a margin over the minimum of 40 g. as to render those Germans living wholly on their rations liable to loss of that trivial margin of safety by any trivial further disturbance of nitrogenous metabolism. Any lessening of protein assimilation (as by digestive disturbance) or any increase in energy output (as by exercise, cold, or individual bulk above the average) must suffice to reduce the available "B.V.P." below 40 g. and convert this ration into a diet such as, if long continued, we have found associated with the occurrence of pellagra.

Naturally this leads to the question of whether or not any of these Germans—and particularly these two pellagra cases—lived upon their rations. As Dr. Enright does not even mention so crucial a matter, one can only infer that it escaped his attention, and that a unique opportunity—such as can hardly recur—of establishing the precise diets of these two patients, and thus adding precise scientific data of obvious importance, was lost. Thus, again, probabilities have to be weighed; but in this case there is small room for doubt. It is only necessary to assume that 2 of 2224 prisoners in this camp lived upon their rations, and the whole criticism fails. The armistice, late in November, 1918, brought the possibility of transmitting money to Germany. It would, indeed, be remarkable if there were not, among 2224 men, two who hoarded their money allowance with a view to sending it home to their families. It would be no less remarkable if there were not here—as in the Turkish labour prisoners' camp—some inveterate gamblers who gambled away every cent. that they received. We are not even told whether the money was still continued to be supplied to these men, and the "critical analysis" invoked appears to have been in abeyance.

What applies to the German prisoners at Maadi also applies to those in other camps, and we are thus left with only the hospital diets to consider.

(ii). *In hospital.*—This concerns the cases cited as having been in hospital for other conditions for some considerable period before appearance of the diagnostic pellagrous rash. First it is noted that Dr. Enright refers to a "prodromal stage" in these cases, which preceded the rash by from 8 to 16 weeks, during which there occurred, among other symptoms, "obstinate diarrhœa ..... with passage of undigested matter," while "in some there was anorexia." During this period these patients thus ingested less, and lost more, protein; all had diarrhœa, and 9 of the 25 had dysentery. There was a further loss of assimilated protein, by indicanuria. In fact, it is evident that, as Dr. Enright puts it, "there was abnormal protein decomposition (in the bowel), and the ultimate good effects of the diet were largely vitiated or entirely lost in this manner."

This is most interesting as a corollary to results obtained by Professor Wilson and Captain H. E. Roaf by careful study of the nitrogenous equilibrium of a group of Turks selected by Professor Boyd, from a non-labour prisoners' camp, as free from any signs of pellagra. Their loss of nitrogen by malassimilation amounted to 33·6 per cent. of that ingested, as compared with 35·1 per cent. for definite pellagrins, and only 23 per cent. for what Professor Wilson's experience indicated as normal to the country. We also found that marked hypochlorhydria is one of the earliest features of established pellagra. The special interest of these findings lies in correlating them to the fact that such apparently healthy prisoners, selected (by pellagra experts) from volunteers in non-labour camps where many of them had been confined for long periods, became definitely pellagrous remarkably quickly (within three weeks in some instances) after transfer to labour camps. Whether these men were in the "prodromal stage," or were recurrent cases whose initial attack had been overlooked, it appears that malassimilation had so reduced their protein nutrition that they had become borderland persons, liable to become actively pellagrous on the least increase of energy expenditure sufficient to break down their precarious nitrogenous equilibrium.

If there be indeed in pellagra a "prodromal stage" during which protein assimilation is reduced in the manner suggested, and to the extent indicated by these clinical notes, then it follows that deficient biological value of protein in the diet must play a most important part in the progress of the case towards establishment of a vicious cycle, which, by the action and reaction of malassimilation and putrefactive diarrhœa, must eventually make recovery impossible.

It is thus apparent that in these hospital cases under consideration the adequacy of their diets cannot be considered apart from the factor of protein mal-assimilation and loss; in other words, they must have suffered a "relative" deficiency.

To the article under review we owe details which enable us logically to follow the indicated processes in the reverse direction consequent upon recovery of such patients as had not progressed to an irrecoverable stage. Checking of putrefactive diarrhœa initiated recovery: "If the stools became solid they gradually became better." If taken sufficiently early they recovered on the simple treatment of rest, which limited their energy output, and improved dieting. It is remarkable, further, that the items which Dr. Enright's experience led him especially to include in the increased diet should be those so especially rich in "B.V.P." as 7 oz. of meat and two eggs per diem.

To summarise: the disease is apparently cured if no other treatment be adopted than that of checking protein loss, lessening energy expenditure, and increasing protein intake, especially as regards its biological value of protein.

In conclusion, two other points may perhaps be referred to very briefly. The first is Dr. Enright's question as to why pellagra should not have occurred in the Central Powers during their food-shortage period of the war. In a report sent to the War Office by the D.M.S., Egypt, it is stated that "A few German Red Cross orderlies knew of the disease (pellagra), *having seen it in Austria.*" Moreover, we have the evidence of Dr. Kulz. I quote these as two items which have just chanced to come to my notice without my having had an opportunity to make any inquiries in this direction.

The last point is the very pertinent question—Why did not any of the many dysenteric, and other, cases among the British Forces of the B.E.F. who suffered from so marked a malnutrition become pellagrous? It

may be that a primary attack of pellagra only follows a long-continued deficiency in "B.V.P." such as these troops never experienced in the field, while the onset of wasting dysentery was so promptly met by rest in bed and appropriate milk diet that the malassimilation resulting was met from the outset by so complete a conservation of energy that relative insufficiency was not established. It must, however, be frankly admitted that this explanation is not convincing.

Is the deficiency factor only a contributory factor to a determining cause yet to find? If so, the suggestion that the latter is to be sought in an helminthic infection such as ascaris is equally difficult of acceptance, because the apparently healthy Turks were equally infected with the pellagrous, and the immune Indian troops were heavily infested by ascaris, if my recollection serves me well with regard to the findings of Major F. W. Stewart, I.M.S.

I am, Sir, yours faithfully,

P. S. LELEAN,

Lieutenant-Colonel, R.A.M.C.; Professor of Hygiene.
R.A.M. College, July 11th, 1920.

MEDICAL EXPERIENCES IN MACEDONIA AND THE CAUCASUS.

To the Editor of THE LANCET.

SIR,—Dr. Arthur Phear, in a lecture on his experiences in the East, which was given before the Royal Society of Medicine and published in THE LANCET of July 10th, refers to my observations on quinine which appeared in the *Journal of Hygiene* in October, 1919. Dr. Phear has given a condensed account of his experiences of various diseases, and a still more condensed abstract of my observations; in fact, he omits the essential points, but a relatively lengthy criticism follows. I showed that when quinine is injected intramuscularly, in concentrated or dilute solutions, it is absorbed with remarkable rapidity. At the end of two hours from the time of the injection the majority of the quinine has been removed. This was found to be the case in man, and in mules which were inoculated experimentally. This fact, which is of very great importance, is not referred to by Dr. Phear. The injection of any preparation of quinine into muscles, or subcutaneously, produces tissue necrosis which may be extensive. Animal experiments have shown that disasters will occur if the injections are not made correctly, and the complications which arise are, as would be expected, exactly those which are met with in the human subject. In my paper I have given a list of the complications which *did occur* among men injected intramuscularly with quinine, and some of these complications were of a very serious nature. Dr. Phear, apart from some cases of dysentery, never met with any serious complication. There are a very large number of others who will entirely agree with him, but, in my opinion, if it is fully recognised that serious troubles may arise unless the dangers, and how to avoid them, are fully understood, then quinine injections will not be regarded with apprehension. The remarkable fact that many thousands of injections of quinine were given during the war alone without mishap is great testimony to the recuperative power of the tissues. A distinguished member of the medical profession wrote to me in reference to my paper on quinine as follows: "No one should be allowed to inject toxic substances such as quinine into the tissues of his fellow creatures until he is fully acquainted with the dangers, which should be learnt by animal experiment."

I am, Sir, yours faithfully,

London, July 12th, 1920. LEONARD S. DUDGEON.

PHYSICAL ELEMENT IN PSYCHONEUROSES.

To the Editor of THE LANCET.

SIR,—I, like Dr. Judson Bury, "have been much impressed by the frequency with which relapses have occurred in cases which had been discharged from Maghull, Seale Hayne, and other neurological hospitals as either cured or improved," and I am glad to find that the medical profession is beginning to appreciate the folly of imaginin that it is possible permanently to cure psychoneuroses in a few minutes by suggestion, persuasion, &c. It *is* possible, and easy, it is also wise, to remove certain troublesome symptoms in this way; but it is not possible thus to replace suddenly the lost "ergogen" in the brain cells or to prevent relapse. All hysterical patients become also neurasthenic in time, unless their improvement by psychotherapy is confirmed into cure by country work and convalescence. At one period I could have sent away at a time 500 to 600 sufferers from war neuroses separately (and this is important) to light work in the gardens of England, Scotland, and Ireland; but the Government departments concerned were hoodwinked by the wonder-workers, the ten-minute curers, who misled themselves by not following up their cases, and dazzled the mental vision of the authorities by the evanescent brilliance of their immediate results.

Now that the Country Host Scheme has been taken over by the Red Cross and that private enthusiasm has diminished, I fear there is much difficulty in finding hosts, but I am still seeing very many neurasthenics who urgently need non-institutional convalescence and who probably will not recover permanently till they get it. Could not our country confrères persuade landed proprietors and others in their district to act as "hosts" to single neurasthenics, who would live with the gardeners for two or three months and work with the latter, not for pay but by way of treatment?

Any "host" willing to receive such a patient should communicate with the County Director, Red Cross (Country Host Scheme), 27, Grosvenor-place, London, S.W. 1. I am, Sir, yours faithfully,

THOMAS LUMSDEN.

South Eaton-place, S.W., July 9th, 1920.

THE TEACHING OF OBSTETRICS.

To the Editor of THE LANCET.

SIR,—In a leading article in THE LANCET for July 3rd it is stated that—

"We believe it is only the Universities of Oxford and Cambridge which require that the student shall actually receive practical instruction in lying-in wards before presenting himself for his examination in midwifery."

In the Calendar of the University of Leeds, 1919–20, p. 409 et seq., the regulations for candidates read thus:—

Hospital work—*In Obstetrics* (a) of *having attended during not less than one month the indoor practice of a Lying-in Hospital* or the Lying-in Wards of a general hospital approved by the University, and (b) having personally conducted not less than twenty cases of labour, &c. .....

For many years this rule has been complied with. Each student attends for one month and receives practical instruction at the Leeds Maternity Hospital (70 beds) before being allowed to attend cases in the district. I may add that arrangements are now being made to carry out the suggestions of the General Medical Council in a more complete manner than formerly possible. It may not be without interest to state that candidates for the final examination are required to undergo a clinical examination in gynæcology, and I think that this university was the first to carry this idea out some 12 or 15 years ago.

I am, Sir, yours faithfully,

E. OCTAVIUS CROFT,

University of Leeds, July 8th, 1920. Professor of Obstetrics.

THE BIOCHEMISTRY OF MICRO-ORGANISMS.

To the Editor of THE LANCET.

SIR,—The short report, appearing in THE LANCET of June 26th, of a paper on detoxicated vaccines which I read at the Brussels Congress (Royal Institute of Public Health) in May was misleading, and I should like to give a short résumé of my work, during the past two years, on the detoxication of vaccines, which has largely developed into a study on the biochemistry of micro-organisms. Whilst researching on the biochemical composition of germs I have carried out at the same time a parallel series of investigations on various tissues of animals and certain plants.

All bacteria are closely related in their biochemical composition to animal tissues, and consist largely of

protein substances. On the other hand, they differ materially from plant tissues in that they apparently contain no cellulose. My researches have shown that bacteria and animal tissues can be split up in the same manner into three main groups of substances—viz., alkali soluble material, acid soluble material, and alcohol soluble material. The relative proportions of the alkali, acid, and alcohol soluble fractions of different germs and animal tissues vary very greatly; for example, the gonococcus consists of 90 per cent. alkali soluble, 9 per cent. acid soluble, and 1 per cent. alcohol soluble substance, whereas the tubercle bacillus contains 40 per cent. alkali soluble, 30 per cent. acid soluble, and 30 per cent. alcohol and chloroform soluble material. No two germs give the same quantitative proportions and thus it is possible to diagnose a given germ by biochemical analysis alone without resorting to the microscope. The same is true of tissues. Brain tissue is remarkable in containing an enormous proportion of alcohol and chloroform soluble lipoid material (about 50 per cent.), whereas the alkali and acid soluble fractions are correspondingly low. Muscle tissue, on the other hand, is rich in alkali and acid soluble material and comparatively poor in alcohol soluble substance.

The quantitative biochemical analysis can be carried, however, much further, since it is possible to split up the alkali and acid-soluble fractions into subgroups. Thus, the alkali-soluble material may be subdivided further into (*a*) metaprotein, which is thrown out of alkaline solution on neutralisation with acid; (*b*) primary proteose, which is thrown out of the neutral solution by half saturation with ammonium sulphate; (*c*) secondary proteose, which is precipitated by full saturation with ammonium sulphate; (*d*) a brown material not precipitated either by full saturation with ammonium sulphate or absolute alcohol. This subdivision of the main groups makes it possible to separate the toxic fractions from each. When the metaprotein and proteoses are thrown out of solution by neutralisation, ammonium sulphate or alcohol, the toxic substance remains in the supernatant fluid. It can also be removed from the precipitates by simply washing the latter with alcohol or water or both.

In the case of the secondary proteose precipitates, which are largely soluble in water, the toxin must be removed by washing with absolute alcohol. The toxic material is light straw in colour when dilute and dark reddish brown, like port wine, when concentrated. It appears to be identical with the substances excreted in urine. It is well known that urine is toxic. In other words, it would appear that by this process of detoxication there is removed from the germs or tissues the same harmful and useless substances that are excreted by living animals in the urine. The brown toxic material, so far as I can ascertain, is not antigenic (produces no immunity). The other non-toxic fractions of the germs, on the other hand, are definitely antigenic (immunising), as estimated by the complement-fixation test and by inoculation experiments. The first detoxicated vaccines, which I described in THE LANCET of June 28th, 1919, were composed only of the alkali-soluble metaprotein part of the germs. Now I include in addition all the other antigenic fractions—viz., the proteoses, the acid-soluble and the alcohol-soluble lipoid portion, each of which is detoxicated separately. In other words, every part of the germ is now included except the actual endotoxins.

Another point of great interest is the fact that the preteoses have a provocative action. For example, the preteose fraction of the gonococcus when injected subcutaneously provokes a focal reaction at the site of the disease. In a disease like gonorrhœa this provocation does no harm and I include the proteoses in this vaccine because they are antigenic. In systemic diseases, however, like tuberculosis or pneumonia, it is doubtful if the proteoses of the tubercle bacillus and the pneumococcus should be included in the vaccines, since a provocative focal reaction in the chest in such conditions might be undesirable. At the present time I am endeavouring to ascertain whether detoxicated tubercle bacillus vaccine is better with or without the proteoses. With the vast majority of germs, detoxicated vaccines are some ten to one hundred times less toxic than ordinary vaccines. In the case, however, of the typhoid and coliform group of germs, the detoxication is not so marked. I am inclined to attribute this to the fact that the bacteria of this group have a very much higher percentage of proteoses in their composition than those of any other group so far examined.

I am, Sir, yours faithfully,

DAVID THOMSON,
Lecturer and Research Pathologist to the London Lock Hospital.

New Cavendish-street, W., July 8th, 1920.

THE ILLNESS OF MR. CLIFFORD ALLEN.

To the Editor of THE LANCET.

SIR,—I enclose a statement by Mr. Bertrand Russell and myself on the illness of Mr. Clifford Allen while with the British Labour Delegation in Russia, to which I was attached as physician and secretary. Mr. Russell and I are anxious to have our own signed statement circulated because a matter of principle of first-class importance both to individuals and doctors emerges from it. Mr. Allen is getting better and is now on his way to England.

I am Sir, yours faithfully,

L. HADEN GUEST.

Tite-street, S.W., July 12th, 1920.

ENCLOSURE.

British Labour Delegation to Russia and the Illness of Mr. Clifford Allen.

On May 30th, while the British Labour Delegation was on the Volga, Mr. Clifford Allen became suddenly ill with acute pleurisy and pneumonia originating from the latent phthisis from which he had suffered. Before the delegation left England for Russia, Mr. Allen was medically examined and was found in good health and free from any active disease, and had so remained free for one year. Mr. Allen was, therefore, considered fit to travel. During the four days after the beginning of the illness, during which the boat proceeded down the river to Saratoff, Mr. Allen became very gravely ill indeed, and Dr. Haden Guest warned the members of the delegation that his life was in great danger. It had been arranged that the delegation should return to Moscow by train from Saratoff. On arrival at Saratoff Allen had a hæmorrhage which made it dangerous to move him.

Three courses were possible with regard to Mr. Allen: (1) to leave him in a sanatorium in Saratoff; (2) to take him by train with the rest of the delegation to Moscow; (3) to let him remain on the boat and proceed with it to Astrakhan. To both of the first two courses there was the insuperable objection that he could not be moved on that day without danger to life, and as accommodation on the boat was comfortable, and there was a Russian doctor and a good Russian nurse attached to the boat, and food, especially milk, was more easily obtainable on the boat than in any town in Russia, as it was obtained directly from the villages en route, it was decided to keep Mr. Allen on the boat. The Russian doctor on board, Dr. Dmitrieff, agreed entirely with the decision which was arrived at—namely, that Mr. Allen should remain on the boat. We proceeded to Astrakhan and from there returned to Saratoff.

Mrs. Philip Snowden and Mr. Bertrand Russell remained with Dr. Haden Guest to help in the nursing. At Astrakhan Dr. Haden Guest called in a consultant, who took an even graver view of the case and regarded it as hopeless. Nevertheless, by the time the boat arrived at Saratoff Allen was sufficiently recovered to be moved and fit to travel as a lying down case. By the kindness of B. M. Sverdloff, Acting Minister of Ways and Communications, who had been on the boat throughout Mr. Allen's illness, a special saloon coach was provided and arrangements were made to enable Mr. Allen to remain in this coach until his arrival at Revel in Esthonia, as well as for accelerating his journey. Partly on account of the impossibility of communicating with his friends in Western Europe and partly for other reasons Mr. Allen so urgently desired to get to Revel, as to make it almost impossible for him to sleep or rest while in Russia. This gravely aggravated his condition and made his departure imperative on medical grounds.

On arriving at Moscow and presenting ourselves at the Foreign Office for visas, we learnt that the Government had decided to keep Mr. Allen in a sanatorium in Moscow pending a medical examination by doctors chosen by themselves. At first Ttchiterine was unwilling to allow this examination to take place immediately in the train, in spite of our both stating to him that we considered Mr. Allen's speedy departure of the utmost importance for saving his life. It was only after we had both made strong and formal protests against the Government decision, which we regarded as gravely increasing his danger, that Ttcherine decided to

send the doctors to the train at once. Much as we regret having been forced into any unpleasantness, we think it necessary to state that we only adopted this method after we found that all milder methods were unavailing. Four doctors were sent to take part in the examination of Mr. Allen, of whom two, Professor Popoff and another, actually performed the physical examination.

Dr. Dmritrieff and Dr. Haden Guest were also present. After examination the professors entirely agreed with Dr. Haden Guest that Mr. Allen was fit to travel and visas of passports were issued during the night, the train leaving Moscow on the following day. At Revel arrangements were made by Dr. Haden Guest to have Mr. Allen removed to the Diakonisse Nursing Home, the American Red Cross lending their ambulance and the British Mission rendering every possible assistance.

The doctor at the nursing home at first took a very grave view of the case, but at the end of two days pronounced Allen out of immediate danger. During the first week of his stay at Revel Mr. Allen made rapid progress and is looked after by an English-speaking nurse, who will accompany him to England if he so desires.

July 2nd, 1920. (Signed) BERTRAND RUSSELL. L. HADEN GUEST.

"PITUITRIN."

To the Editor of THE LANCET.

SIR,—Will you allow me to state that in the case of rupture of the uterus recently reported in THE LANCET from a paper I read before the Obstetrical Section of the Royal Society of Medicine I wrongly used the word "pituitrin" to designate the extract of pituitary gland which was employed. It has been pointed out to me that "pituitrin" is the name exclusively used for the product prepared by Parke, Davis, and Co., and in this particular case it was not the preparation of this firm which was administered.

I am, Sir, yours faithfully,

Harley-street, W., July 12th, 1920. ALECK W. BOURNE.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, JULY 7TH.

Small-pox in Glasgow.

Mr. WATERSON asked the Minister of Health if he would state how many cases of small-pox had occurred in the city of Glasgow this year.—Mr. C. D. MURRAY (Solicitor-General for Scotland) replied: The number of cases of small-pox in Glasgow up to July 2nd was 306.

Exhumation of American Soldiers.

Lieutenant-Colonel BUCKLEY asked the Minister of Health if bodies of American soldiers interred in the Liverpool district were being exhumed for transfer to America, and if so, would he state where these bodies were being recoffined and what arrangements were being made to avoid risk of infection.—Mr. SHORTT (Home Secretary) replied: The reply to the first part of the question is in the affirmative. These removals are being carried out by the United States military authorities with the aid of an expert staff, and with the most careful precautions against the possibility of any risk to the public health. The remains are thoroughly disinfected immediately on the coffin being opened, and are at once replaced in a metal case which is hermetically sealed. This takes place in the cemetery, and is completed in a very short time after the exhumation. I am satisfied that no danger to the public health need be entertained.

Chairman of General Nursing Council.

Mr. ALFRED DAVIES asked the Minister of Health whether he appointed the present chairman of the General Nursing Council set up under the Nurses Registration Act without consultation with the members of the Council, and if so, would he state his authority for this action.—Mr. ROBERT RICHARDSON asked the Minister of Health whether he was aware that the chairman of the General Nursing Council had neither experience nor knowledge of medical or nursing matters sufficient to enable him to understand and to guide the General Nursing Council in its deliberation on professional subjects.—Dr. ADDISON replied: The General Nursing Council has to prepare statutory rules to perform judicial functions in relation to the removal of unfit persons from the register, and in view of the amount of quasi-legal work devolving on them I thought it desirable to appoint a chairman with legal experience, and I was fortunate in being able to persuade Mr. Priestley, K.C., to accept this post. I was not under any obligation to consult the members of the Council, and I accept full responsibility for the appointment.

Refuse Dumps at Greenford.

Mr. MOSLEY asked the Minister of Health whether he would make immediate inquiries into the dumping of refuse from Marylebone by canal into the district of Greenford, Middlesex, in view of the fact that a swarm of rats and flies, attracted by this refuse, constituted a grave danger to the health of the inhabitants of Greenford.—Dr. ADDISON replied: I have already arranged to have these refuse dumps inspected at an early date.

The Finance Bill: Income-tax Relief to Foreign Invalids.

The House went into Committee on the Finance Bill, Mr. Whitley in the chair.

On Clause 23, which provides that no relief in respect of income-tax shall be granted to an individual resident outside the United Kingdom unless they can satisfy the Commissioners of Inland Revenue that they are (*a*) a British subject, (*b*) that they are or have been in the service of the Crown, or employed in the service of any missionary society or in the service of any native State under the protection of His Majesty, (*c*) they are resident in the Isle of Man or the Channel Islands, (*d*) have previously resided within the United Kingdom and are resident abroad for the sake of their health, or (*e*) that the claimant is a widow whose late husband was in the service of the Crown.—Mr. G. LOCKER-LAMPSON wanted to confine the operation of Paragraph (*d*) to persons of British birth. The Chancellor, he said, was apparently going to allow a person who was not of British birth, and who left the United Kingdom to go abroad for the sake of his health, to obtain relief. He did not see why relief should be given to a foreigner, who very likely went back to his own country.—Mr. BALDWIN (Financial Secretary to the Treasury) said he hoped that the amendment would not be pressed. He could quite understand his honourable friend's feelings, because many of them still felt that they did not want any of the advantages which were given to English people to be given to Germans, but this was not confined to Germans. There were genuine cases of people who had lived in this country for the best part or all their lives, who belonged to friendly and allied nations, and he did not think that they should take away from these people by Statute a privilege that was enjoyed by all others who were resident in this country, if and when the circumstances arose.—The amendment was negatived.

Eaton Hall Hospital, Chester.

Mr. ROBERT YOUNG asked the Secretary for War whether Eaton Hall, Chester, was now closed as a hospital; and whether he could state the number of officer patients in residence at the end of April and later monthly periods, along with the number of staff employed there at the end of each month since Dec. 31st last.—Mr. CHURCHILL replied: Yes, Sir. Eaton Hall is now closed as a hospital. The number of officer patients in residence on the dates mentioned was as follows: April 30th, 1920, 62; May 28th, 8; June 4th, nil. The staff employed was as follows: Jan. 4th, 1920, 108; Jan. 25th, 107; Feb. 29th, 110; March 28th, 88; April 25th, 83; May 30th, 41.

Women's Hospital, Clare Market.

Mr. ALFRED T. DAVIES asked the Minister of Health whether he was now in a position to announce the result of his representations to the authorities of the Sheffield-street Hospital for Women at Clare Market, W.C. 2, with reference to the appointment of two men doctors to the posts of medical officers and assistant medical officers, respectively, and to the desirability, admitted by the Ministry of Health, of appointing women to posts of this kind.—Dr. ADDISON replied: I have now been informed by the authorities of the hospital that the desirability of selecting women for posts of this character will receive special consideration in connexion with any future appointments.

Invalids' Flour.

Mr. WADDINGTON asked the Food Controller what was the method adopted in appointing grocers in Lancashire towns for the sale of white flour for invalids, and whether the number of these appointments had any regard to the population in the district; was he aware that in some towns of large population only one grocer was appointed, and this caused great inconvenience to those requiring the white flour; and would he make further appointments where reasonably required.—Sir W. MITCHELL-THOMSON (Parliamentary Secretary to the Ministry of Food) replied: The number of retailers specially authorised to supply imported flour under the Invalids' Flour Scheme has been determined with due regard to the population in each district, but the Minister of Food is prepared to make further appointments where representations justifying this course are made to him.

Tetanus in the Great War.

Mr. WATERSON asked the Secretary of State for War whether he could state the incidence of tetanus in the

recent war as regards wounded men brought to England, wounded men nursed in France or other parts of the continent, wounded men in Mesopotamia, and wounded men in Gallipoli and Egypt and other theatres of war, giving the attack-rate and the death-rate per thousand wounded in each case.—Mr. CHURCHILL replied: I regret that complete statistics are not yet available. For the period from August, 1914, to December, 1918, the number of cases of, and deaths from, tetanus reported in France, Belgium, and the United Kingdom among the troops wounded in France and Belgium gives approximately an attack-rate of 1·22 per 1000 and a death-rate of 0·49 per 1000. I have no figures at present regarding the incidence of tetanus in the other theatres of war mentioned, but I am informed that very few cases occurred in any of them.

MONDAY, JULY 12TH.

Indian Medical Service.

Sir W. JOYNSON-HICKS asked the Secretary for India whether he had arrived at any decision as to the future of the Indian Medical Service.—Mr. MONTAGU replied: I shall be in a position to decide on this question and to make an announcement when I receive the Government of India's recommendations on the Reports of the Army in India Committee (in so far as it deals with military medical organisation in India) and of Sir Verney Lovett's Committee on Medical Services in India. The two reports have to be considered together. Copies of the Lovett Committee's Report for publication are on their way to England, and I hope to publish the two Reports simultaneously very shortly. Meanwhile copies of the Report of Lord Esher's Committee have been sent to the Government of India, who will forward as soon as possible their views on both Reports. The following press communiqué was issued from the India Office on July 5th containing the revised rates of pay for the Indian Medical Service; also a copy of a letter which was sent to the British Medical Association on June 22nd dealing with the questions of pay allowances, pensions, passages, and leave reserve of the service, and the official status of the Director-General and Surgeons-General:—The Secretary of State for India, after consultation with the Government of India, announces the following increased rates of pay for regular officers of the Indian Medical Service, which take effect from Jan. 1st, 1920. The combined rates of basic pay and overseas allowance apply to all officers who were in the permanent service on Dec. 1st, 1918, and to all British officers who have joined or may join the service after that date. Indian officers who have joined or may join the service after Dec. 1st, 1918, will draw, as from Jan. 1st, 1920, pay in accordance with the basic scale set forth below, unless they are already drawing pay at a higher rate, in which case they will continue to enjoy the benefit of that rate for so long as they would otherwise have done; but they will not receive any further increment until it is due to them under the basic scale. The arrangements affecting Indians who join the service after Dec. 1st, 1918, are provisional. Exchange compensation allowance will not be admissible.

Rank.	Year of service.	Basic pay.	Overseas allowance.	Total basic pay and overseas allowance.	Rank.	Year of service.	Basic pay.	Overseas allowance.	Total basic pay and overseas allowance.
		Rs.	Rs.	Rs.			Rs.	Rs.	Rs.
Lieut.	1	500	150	650		13	950	250	1200
	2	500	150	650		14	950	250	1200
	3	500	150	650		15	950	250	1200
					Major ...	16	1100	250	1350
	4	650	150	800		17	1100	250	1350
	5	650	150	800		18	1100	250	1350
	6	650	150	800		19	1250	250	1500
	7	750	200	950		20	1250	250	1500
Capt. ...	8	750	200	950		21	1500	250	1750
	9	750	200	950	Lieut.-Col. ...	22	1500	250	1750
	10	850	200	1050		23	1500	250	1750
	11	850	200	1050		24	1600	250	1850
	12	850	200	1050		25	1600	250	1850
						Over 25	1700	250	1950
						on S.L.	1850	250	2100

S.L. = Selected List.

Charge allowances and second-in-command allowances for station hospitals will be admissible in addition to the above rates of pay at the following rates:—

(a) *Charge Allowance.*

	Rs. per mensem.
1st class hospitals	240
2nd class hospitals	180
3rd class hospitals	120
4th and 5th class hospitals	nil.

(b) *Second-in-Command Allowance.*

	Rs. per mensem.
1st class hospitals	120
2nd class hospitals	90

Dated 5th July, 1920.

The following is the letter referred to:—

India Office, Whitehall, S.W.1., June 22nd, 1920.

SIR,—In continuation of this Department's letter of the 5th instant, No. M.4784, I am directed to address you on certain questions affecting the Indian Medical Service. The Secretary of State understands that in the course of interviews which have taken place between the Medical Adviser at the India Office, on the one hand, and the Chairman of the Naval and Military Committee of the Association and the Editor of the *British Medical Journal* on the other, the following proposals were put forward on behalf of the service:—

1. *Pay.*—The pay of officers to be calculated on the pre-war scale for charge of a regiment, but to be approximately 50 per cent. in excess of that.

2. *Allowances.*—(*a*) Allowances to be granted for the charge of Indian station hospitals. (*b*) Allowances not to be reckoned as part of the 50 per cent. increase, but as additional to it. (*c*) All existing general allowances paid to holders of professorial and bacteriological appointments and certain other special classes of appointments on the civil side to be maintained.

3. *Pensions.*—The same relative consideration to be given to officers of the Indian Medical Service as to combatant officers of the Indian Army. (The maximum for the Director-General, Indian Medical Services, being £1150 a year.)

4. *Passages.*—Officers of the Indian Medical Service in military employ to receive the same concessions in the matter of passages as combatant officers of the Indian Army. Officers of the Indian Medical Service in civil employ to receive the same treatment as officers of other Civil Services in India.

5. *Status of the Director-General and Surgeons-General.*—These officers to have the same rights as the Secretary to the Government in the matter of (*a*) direct access to the Viceroy or Governor, as the case may be; (*b*) access to documents, and opportunity of forwarding their views to the Viceroy or the Governor, as the case may be.

6. *Leave Reserve.*—The cadre of the Indian Medical Service to have a reserve of 25 per cent. for furlough, and 2½ per cent. for study leave, whenever this may be practicable.

Points 1 to 3 above have already been disposed of in this Department's letter of June 5th cited above, and the Secretary of State is about to make a public announcement, communicating the reorganisation of the pay of the Service.

As regards pensions, I am to refer you to the memorandum dated 3rd instant, issued by this Office, communicating the revised rates of pension for officers of the Indian Army and of the Indian Medical Service.

As regards passages, there has as yet been no decision on the question of passages for combatant officers, but the Secretary of State is willing to undertake that officers of the Indian Medical Service in military employ will receive the same advantage as those officers, and that those in civil employ will receive such concessions, if any, as may be granted to other offices in civil employ.

The Government of India reported in a despatch dated Feb. 26th that they had already agreed to the principle that the Director-General and Surgeons-General with provincial Governments should have the right to place their views direct before the Viceroy or Governor when necessary, and that they were then considering the best means of giving effect to that decision. In the meantime, the Secretary of State accepts point 5.

The Secretary of State undertakes to carry into effect the proposals for a 25 per cent. leave for furlough, and 2½ per cent. reserve for study leave, as soon as the strength of the Service permits.

I am, &c.,

(Sd.) S. F. STEWART, Deputy Secretary, Military Department.

The Medical Secretary, British Medical Association, 429, Strand, W.C.2.

Cost of National Health Insurance.

Mr. ROBERT YOUNG asked the Minister of Health whether National Health Insurance had cost since its inception £190,000,000, while benefits disbursed had only amounted to £24,000,000; and, if so, would he explain the reason for the cost of administration, and also say what was the amount of money remaining to the credit of the National Health Insurance Fund at the end of June or latest ascertainable period.—Dr. ADDISON replied: The total cost of National Health Insurance from its inception to Dec. 31st, 1919, was in round figures £190,000,000, the amounts paid in benefit and administration were £99,000,000 and £25,000,000 respectively, leaving a balance in reserve at that date of £66,000,000. The honourable Member in his figures has omitted the main cash benefits of the Act—namely, the sickness and disablement benefits.

Superannuation of Employees of Local Authorities.

Major HENDERSON asked the Minister of Health whether it was proposed to introduce a Bill this session dealing with the superannuation of employees of local authorities.—Dr. ADDISON replied: The matter to which my honourable friend refers is receiving consideration and proposals are being framed, but I cannot at present give a definite undertaking to introduce a Bill on the subject this session.

Fares of Hospital Out-Patients.

Mr. WATERSON asked the Minister of Transport if he could see his way to grant special reduced fares to people who were compelled to travel regularly to hospitals for treatment, and who now found the increased rate a terrible burden upon them.—Sir E. GEDDES replied: I regret that it is not practicable to grant reduced fares in such cases.—Mr. W. R. SMITH: Is the right honourable gentleman aware that in some of these cases it means three visits a week to a county hospital; that the very poorest people are involved; and that these high fares may be the means of depriving them of the medical treatment required to restore them to health?—

Sir E. GEDDES: I have the greatest sympathy with them, but in the present financial condition of the railways I cannot think that it would be right to subsidise any particular kind of journey at the expense of the taxpayer.—Mr. WATERSON: Would the right honourable gentleman consider individual cases brought to his notice?—Sir E. GEDDES: I shall be prepared to consider any case brought to my notice, but it is extremely difficult to say where you are going to make an exception.—Mr. WATERSON: Would not a doctor's certificate justify you?—No answer was given.

TUESDAY, JULY 13TH.

Conditions of Officers in R.A.V.C.

Colonel Sir ARTHUR HOLBROOK asked the Secretary for War if any decision had yet been arrived at with regard to the conditions of half pay for officers in the Royal Army Veterinary Corps; what steps were being taken to reduce the surplus strength of major-generals in the Royal Army Veterinary Corps; and whether he was aware that there were two such officers surplus to establishment whose retention was retarding the promotion of junior officers; if the two major-generals surplus to the Royal Army Veterinary Corps establishment were paid as and reckoned on the list of colonels on the establishment of that corps; and, if so, why did they not receive similar treatment as regards the conditions of half pay as other colonels on the establishment.—Sir A. WILLIAMSON replied: The two major-generals referred to by the honourable and gallant Member were promoted substantive major-generals for distinguished service. They are not surplus to the establishment of the Royal Army Veterinary Corps, but are holding appointments as colonels, which they would have filled if they had not been promoted. Their retention is not, therefore, retarding the promotion of junior officers. I do not understand what conditions of staff pay for officers of the Royal Army Veterinary Corps the honourable and gallant Member refers to, but if he will let me have fuller details I shall be happy to look into the matter further.

Inebriate Reformatories in Scotland.

Major MACKENZIE WOOD asked the Secretary for the Home Department whether any, and what, provision had been made to enable the powers conferred by Section 24 of the Inebriates Act, 1898, to be carried out; whether a habitual drunkard might be detained in a certified inebriate reformatory for a certain time; and what certified inebriate reformatories for male patients existed in the United Kingdom.—Mr. MUNRO (Secretary for Scotland) replied: There is at present in Scotland, to which the Section cited refers, one certified inebriate reformatory to which female patients may be committed under that Section. A habitual drunkard may, on conviction under the Section, be detained in a certified inebriate reformatory for a term not exceeding three years. In Scotland no certified inebriate reformatories for male patients at present exist.

Employment of Disability Pensioners.

Major COPE asked the Minister of Labour whether he was aware that there was a large number of men being discharged from hospital with a 30 to 40 per cent. disability pension and certified as fit for light work, who were unable to find employment; and, if so, would he state what steps, if any, were being taken, or were proposed to be taken, in such cases.—Dr. MACNAMARA replied: I am aware that in a number of cases the physical disabilities of disabled men make it extremely difficult to place them in suitable employment. The National Scheme, however, depends on employers being prepared to make sacrifices in the interests of disabled men by employing men whom they might not under ordinary circumstances think physically suitable, and I hope that with the extension of the King's Roll, many of these disabled men may be absorbed into industry. I would remind my honourable and gallant friend of our schemes for training disabled men under which, up to the present, we have trained 23,640; we have in training 24,048; and on our waiting list 22,445. I would add that in the training of these men we always keep in view their prospects of employment when training is completed.

DEATH OF DR. E. W. KERR, OF DORCHESTER.—Elias William Kerr, M.D., M.Ch. Dub., M.R.C.P. Irel., has died at his residence in Dorchester, in his seventy-first year. He was the eldest son of the late Rev. W. P. Kerr, D.D., rector of Hillfield. Dr. Kerr had practised for many years in Dorchester, where he had an extensive practice, and was highly esteemed in the town and district. In 1898 he was elected a member of the Dorchester Town Council, and was later made an alderman. In 1903 he became mayor of the town. He was also chairman of the sanitary committee. During the late war, Dr. Kerr assisted the medical officer at Colliton V.A.D. Hospital, and he also rendered medical assistance at the Prisoners Camp, Poundbury.

Medical News.

UNIVERSITY OF BRISTOL.—At examinations held recently the following candidates were successful:—

FINAL EXAMINATION FOR DEGREES OF M.B., CH.B.

Part II. (completing examination).—Thomas Henry Algernon Pinniger.

Part I. only.—William Harris Royal.

FINAL EXAMINATION FOR DIPLOMA IN DENTAL SURGERY.

Edward James Tucker.

EXAMINATION FOR DIPLOMA IN PUBLIC HEALTH.

Charles Herbert Hart, Stuart Hardy Kingston, and Arthur Denis Symons.

Part I. only.—Frederick Vaudrey Cant and Allan Dumbreck Fraser.

UNIVERSITY OF SHEFFIELD.—At examinations held recently the following candidates were successful:—

DEGREE OF M.D.

Lydia M. Henry and Lazarus Samuels.

DEGREES OF M.B., CH.B.

Final Examination.—Constance M. Chappell.

The degree of Ch.M. (ex-officio) has been conferred on the following: Percival Ellison Barber, Professor of Midwifery in the University of Sheffield; and Arthur Mayers Connell, Professor of Surgery in the University of Sheffield.

UNIVERSITY OF EDINBURGH.—At the graduation ceremonial, held in the M'Ewan Hall, Edinburgh, on July 8th, the following degrees were awarded:—

DOCTOR OF MEDICINE.

George Joseph Adams (in absentiâ), Peter Allan, *David Cuthbert Barron, Lawrence Dougal Callander, †Sydney Taylor Champtaloup, Duncan Cook, †Thomas Frederick Corkill, *James William Edington, Harry Evans, ‡George William Marshall Findlay, Andrew Walker Forrest, Henry James Craig Gibson, James Gossip, Thomas Pearson Herriot, William Nicol Watson Kennedy, James Lawson, William Ashley Lethem, ‡David Murray Lyon, William Farquhar M'Lean, *Francis George Macnaughton, Duncan James M'Rae (in absentiâ), James Robertson Menzies, George Nicholson, ‡Edwin Douglas Pullon (in absentiâ), Atholl Robertson (in absentiâ), James Alexander Richard Thompson, Claude Bartley Tudehope (in absentiâ), and *William Gifford Wyllie.

* Commended for thesis. † Highly commended for thesis. ‡ Awarded Gold Medal for thesis.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

Harry Alexander, Reginald Lund Baikie, Philip Barlow, George Shuttleworth Barnett, Richard Erstine Batson, Christiaan Frederik Beyers, Sam Borochowitz, Frederick George Harman Brown, Kenneth Stocks Brown, Henry Wallace Burne, Ronald M'Donald Cairns, Grace Sherwood Calver, Aidan Campbell, Helen Campbell (second-class honours), Harry Cohen, Dorothy Court, John Robert Crolius (in absentiâ), Montague Danziger, James Davidson, James Hamilton Dick, Margaret Laing Dobbie, Herbert John Cecil Durward (in absentiâ), Basil Algernon Gordon Archibald Edelston, Joseph Hayes Fairweather (second-class honours), Owen Fitzpatrick, Elizabeth Strathdee Forbes, Dora Williams Gerrard, Geoffrey M'Kay Gibbon, Mary Lindsay Gilchrist, James Allan Gillison, Michael Samson Goldberg, Jessie Gordon, Janet Grant (first-class honours), Arthur William Preston Haine, John Edgar Haine (second-class honours), Arthur James Cochrane Hamilton (second-class honours), Shankar Waman Hardikar, Christina Margaret Hawick, John Paton Hope, Jacobus Petrus Immelman, William Isbister, William Kantor, Eleanor Heald Kelly, Douglas James Ackworth Kerr, Ba Kin, Sydney Levey, James Alexander Law Loudon, Douglas Ian Otto Macaulay, James Fleming M'Conchie, Margaret Martin M'Dowall, Alexander Gordon MacGillivray, Agnes Mildred Macgown (second-class honours), Agnes Rose Macgregor (second-class honours), Henry MacKay, Florence Emily M'Kenzie, Jean Robertson Maclean, John McLennan, Jane MacLennan, Annie Sheila MacLeod (second-class honours), Jean Small Blair M'Neil, Philippus Bernardus Malherbe, Victor George Massie (in absentiâ), Robert M'Kie van der Merwe, Christian Balfour Fotheringham Millar (second-class honours), Christine Gardner Mitcheson, Donald John Morrison, Emily Marguerite Mure, Andrew Rowand Murray, David James Tosh Oswald, Anand Shridhar Paranjpé, William Patterson Petrie, Kenneth Maclennan Purves (first-class honours), Johannes Christian Rabie, Charles Barclay Reekie, Ruth Jean Deans Ritchie, Hera Ross, Annie May Roxburgh, Charles Wellwood Rubidge, Louie Antoinette Rubidge, Helen May Russell, Henry John Edward Schultz, Thomas Scott, Charles Shapiro, George Alexander Sinclair, William Arnold Sinclair, Philip Bradley Smale, Alice Barbara Stewart Smith, Dorothy Mary Smith, Thomas Sprunt (second-class honours), Ian Maclaren Thompson, Henry Thomson, Mabel Thomson, Marjorie Thomson (in absentiâ), David Livingstone M'Rae Tod, John Calvin Truter, Thomas Cleave Wakefield, Grace Walker, Edith Grace Wilkes, Apolina Anderson Wilson, and James MacLaren Young (second-class honours).

BACHELOR OF SCIENCE.

Department of Public Health.

Thomas Campion Lauder (in absentiâ).

DIPLOMA IN PUBLIC HEALTH.

George Arthur Borthwick, George Campbell (in absentiâ), John Dick, George Francis Palmer Heathcote, Wilhelmina Weir Hendry, Mary Pringle Hislop, Alexander John Pollock, Francis Benjamin Sutherland, and James Munro Tyrrell.

The following awards were also made:—

Faculty of Medicine.—Thesis Gold Medallists: George William Marshall Findlay, David Murray Lyon, and Edwin Douglas Pullon. Cameron Prize in Practical Therapeutics: Sir Robert Jones, K.B.E., C.B. Ellis Prize in Physiology: Robert John Stewart M'Dowall. Gunning Victoria Jubilee Prize in Materia Medica: Francis George Macnaughton. Ettles Scholarship and Leslie Gold Medal: Andrew Weir Davison. Allan Fellowship in Clinical Medicine and Clinical Surgery: Agnes Rose Macgregor. Freeland Barbour Fellowship: Helen Campbell, M.B., Ch.B. M'Cosh Graduate's and Medical Bursaries: David Livingstone M'Rae Tod. Beaney Prize in Anatomy and Surgery; Arthur James Cochrane Hamilton. Mouat Scholarship in the Practice of Physic: Henry Wallace Burne. Conan Doyle Prize: Sydney Levey. Annandale Gold Medal in Clinical Surgery: Arthur James Cochrane Hamilton. Buchanan Scholarship in Gynæcology: Janet Grant. James Scott Scholarship in Midwifery: Douglas Alexander Miller. Scottish Association for Medical Education of Women Prize: Janet Grant. Dorothy Gilfillan Memorial Prize: Janet Grant. Wellcome Medals in the History of Medicine: *Gold Medal*, Adam Cairns White; *Silver Medal*, Hilda Marion Davis. Pattison Prize in Clinical Surgery: John Murray Black. Wightman Prize in Clinical Medicine: Thomas Ferguson. Cunningham Memorial Medal and Prize in Anatomy: John Gray. Whiteside Bruce Bursary: Rennie Cooksey Burton and Margaret Christine Tod (equal).

UNIVERSITY OF ABERDEEN.—**The summer graduation** ceremony was held on July 8th, when the following degrees were conferred:—

DOCTOR OF MEDICINE.

Ernest William Henderson Cruickshank (honours for thesis), Hugh Ross Souper (honours), James George Copland, and John Lewis Menzies.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

*Annie Anderson, Emily Mary Badenoch, Isobel Campbell Brown, Enid Calder, Margaret Winifred Calder, Gertrude Elizabeth Cormack, Alan Alexander Duffus, John Bright Duguid, John Grant Elmslie, Vivian Leslie Ferguson George Matthew Fyfe, George Milne Gray, *James Christian Hall, Alexander Hastings, Robina Inkster, Helen Margaret Jardine, †Gertrude Helen Lendrum (second-class honours), Horatio David Low, †John Douglas McLaggan, *Annie Elizabeth Melvin, Matilda Fisher Menzies, *Marjory Mary Milne, *John Henry Mulligan (second-class honours), Frederic Dudley Ross-Keyt, Alisdair McIntyre Smith, Daniel Ironside Walker, Hiap Tock Wee, and Hilda Sutherland Young.

* Passed Final Professional Examination with distinction.

† Passed Final Professional Examination with much distinction.

The John Murray medal and scholarship were awarded to Dr. Young Garden Murray.

DIPLOMA IN PUBLIC HEALTH.

Alfred William Harper Cheyne, Edward James Clark, George William Elder, Thomas William Edward Elliott, Alexander Fowlie Fraser, George Alexander Connell Gordon, Alexander Johnstone, Sydney Walker Lund, Maggie Florence Jane Moir, John Skinner, James Lind Smith, John Herbert Stephen, John William Stephen, William Taylor, James Williamson Tocher, Burton Yule, and Vincent Thomas Borthwick Yule.

UNIVERSITY OF DUBLIN, TRINITY COLLEGE, SCHOOL OF PHYSIC.—At examinations held recently the following candidates were successful:—

FINAL MEDICAL EXAMINATION.

Part I., Materia Medica and Therapeutics; Jurisprudence and Hygiene; Pathology and Bacteriology.—Izak George Sacks (high marks), Charles Theodore de Mornet Villet (high marks), Theunis de Bruijn, Olive Victoria Fair and Jacob Hofman (equal), Robert Evatt Faussett, Max Elion, Isaac Cornick, Alice Elizabeth Lawlor, May Evelyn Powell, Abraham Agranat, Ruth Florence Flavelle, Gilbert Kirker, and Alida Charlotte Burt.

Pathology only (completing Examination).—Patrick Joseph Healy and Alfred Henry Norman Todd and Thomas Gerald Warham (equal), and John Douglas Thompson.

Part II., *Medicine.*—Eric Henry Cooke Allen (high marks), Maurice Nurock (high marks), William James Alexander Russell, Janie Millar Cummins, Olive Baile, Frederick Ziervogel van der Merwe, Eileen Hilda Dowse, Doris Louisa Graham, Essie Stuart Smyth, William Burton Fox, Edward Haslett Frazer, Johannes Cornelius Coetzee, Frederik Wynand Pienaar, William Richard Burns, and Frederick William Shegog.

Surgery.—Eric Henry Cooke Allen and William Theodore Micks (equal, high marks), Herbert Victor Exner and Francis Victor Small (equal, high marks), Adrian Johannes Louw Snyman and Frederick Ziervogel van der Merwe (equal, high marks), John Henry Brewell Crosbie, William James Alexander Russell, Philip Jabkovitz, Johannes Cornelius Coetzee, Edward Haslett Frazer, Johannes Philippus de Villiers, Moira Mary Brown, William Bernard Joseph Pemberton, Joseph Ballantyne Maguire, Bernard Moshal, Mervyn Edmund McBrien, and Frederik Wynand Pienaar.

Midwifery.—Elinor Dorothy Stopford, Thomas Falkland Litton Cary, William Bruce Briggs and Frederick William Shegog (equal), Charles William Parr, Francis Young Pratt, Edmund Cecil Smith, James Daly Leahy, Percival Israel Levitt, Frederik Wynand Pienaar and Richard Wood Power (equal), Donald Victor Latham, Mervyn Edmund McBrien and Constance McIlrath (equal), Nora Griffith, Patrick Joseph Healy, David John Browne, and James Alexander Smith.

MASTER IN SURGERY.

Isaac Whitla Corkey.

DIPLOMA IN PUBLIC HEALTH.

Part I., Bacteriology, Chemistry, Physics, and Meteorology.—Anna Mary Kathleen O'Halloran, Rupert Montgomery Gordon, Edward Lipman, Joseph Patrick Quinn, Eileen Gertrude Gwynn, James Wilfred McKinney, and Jessie Gilbert and Richard Edward Tottenham (equal).

Part II., Sanitary Engineering, Sanitary Inspection, and Report; Hygiene, Epidemiology; Vital Statistics; Public Health Law.—Charles Henry Comerford, Patrick Rock, Matthew Joseph Graham, Alfred Henry Price, John Francis Gaha, Rupert Montgomery Gordon and James Wilfred McKinney (equal), Richard Edward Tottenham, Charles Edward Pengelley, and Carlile Kelly.

QUEEN'S UNIVERSITY OF BELFAST.—**Of the 66** candidates—the largest number on record—who presented themselves last week for the Final M.B. of the Queen's University of Belfast, 52 passed. Mr. James S. Lee was first in medicine, Mr. F. M. B. Allen was first in surgery (Mr. James P. Martin was also awarded a special prize), and Mr. C. L. Broomhead was first in midwifery. Each of these first prizes in the main groups of medicine, surgery, and midwifery, is of the value of £30. Mr. Broomhead and Mr. Allen divided a prize of £20, being equal as first in all the subjects combined.

UNIVERSITY OF LIVERPOOL.—**At recent examinations** for the Diploma in Public Health the following candidates were successful:—F. A. Belam, J. Cullen, Constance M. Edwards, A. V. Glendenning, H. Middleton, S. R. Richardson, R. Rimmer, A. A. Turner, and J. Walker.

UNIVERSITY OF BIRMINGHAM.—**The Degree Congregation** was this year held in the Great Hall of the University on July 10th for the first time since 1914. In the intervening years the University formed the 1st Southern General Hospital with 1600 beds, and the Great Hall itself became the largest ward in England. The degrees were conferred by Sir Gilbert Barling, the Vice-Chancellor; 16 men and women were presented for the degrees of M.B., Ch.B., one man received the M.S., and one woman the M.D.

An elaborate scheme for post-graduate lectures to occupy a fortnight, beginning July 5th, had been arranged, but unfortunately the response was unsatisfactory, and for several of the sections the number of applications was too small to justify the holding of the lectures. Few practitioners were found able to give up the time necessary and the season was probably also unsuitable. The applications for the Sections of Medicine, Diseases of Children, Physiology, Radiology and Electrical Treatment, however, enabled these to be proceeded with. In the Section of Medicine Dr. O. J. Kauffmann gave lectures and demonstrations on the Diagnosis of Nervous Diseases, Dr. W. H. Wynn on the Diagnosis and Treatment of Pulmonary Tuberculosis, Drs. J. G. Emanuel and K. D. Wilkinson on Modern Methods in Heart Disease. The Section of Diseases of Children was conducted by Dr. Douglas Stanley, Dr. L. G. Parsons, and Mr. Bertram Lloyd. Professor E. W. Carlier discussed certain problems of Internal Secretion in the Section of Physiology, and Dr. H. Black gave a series of demonstrations on Radiology.

THE Royal Statistical Society has opened a register of the names of persons eligible for statistical posts. The society has often been asked to recommend qualified statisticians and has taken this means of bringing those who have appointments to offer into touch with suitable applicants. A list of names and qualifications will be furnished on application to the Secretary, at 9, Adelphi-terrace, London, W.C. 2.

MINISTRY OF PENSIONS: HONORARY CONSULTANTS.—The following physicians and surgeons, in addition to those whose names have already been announced, have consented to act as honorary consultants to the Ministry of Pensions:—

Honorary Consultants in Cardio-vascular Cases.

J. E. McIlwaine, M.D., R.U.I., D.P.H., Ulster Region.
H. J. Starling, M.D. Lond., D.P.H., Eastern Region.
Carey Franklin Coombs, M.D. Lond., F.R.C.P., S. Western Region.
T. Wardrop Griffith, M.D. Aberd., F.R.C.P., Yorkshire Region.
Wm. Errington Hume, M.D. Camb., F.R.C.P., Northern Region.
John Hay, M.D. Vict., F.R.C.P., North-Western Region.
Dr. Thos. Mather Thomson, L.R.C.P. & S. I., Ireland South Region.
William Thos. Ritchie, M.D. Edin., F.R.C.P., Eastern Portion of Scotland Region.
John M. Cowan, M.D. Camb., D.Sc. Glasg., Western Portion of Scotland Region.

Honorary Consultants.

Sir James Dundas Grant, F.R.C.S. Eng., Honorary Consultant in Aural Diseases to the Ministry.
Hugh Maclean, M.D. Aberd., D.Sc. Lond., Honorary Consulting Physician to the Ministry.
Sir Robert W. Philip, M.D., F.R.C.P. Edin., Honorary Consulting Physician in Tuberculosis to the Ministry.
Chas. J. Bond, F.R.C.S. Eng., Honorary Consulting Surgeon in East Midland Region.
Astley Vavasour Clarke, M.D. Camb., Honorary Consulting Physician in East Midland Region.
Sir Arthur Chance, F.R.C.S.I., Honorary Consulting Surgeon, Ireland, South Region.
William Richard Dawson, M.D. Dub., F.R.C.P.I., Honorary Consultant on Functional Nervous and Mental Cases for Ireland.
Francis Carmichael Purser, M D. Dub., F.R.C.P. I., Honorary Consultant on Organic Neurological Cases for Ireland.

THE Sir Alfred Jones Laboratories, Pembroke-place, Liverpool, under the direction of the Liverpool School of Tropical Medicine, will be officially opened by Lord Leverhulme on Saturday, July 24th, at 2.30 P.M.

Mansfield House University Settlement, Barking-road, Canning Town, London, E. 16, is again open to receive as residents men who are prepared to devote time to social studies and activities.

THE fifty-seventh annual general meeting of the British Pharmaceutical Conference will be held at Liverpool from Monday next, July 19th, until the following Friday. Mr. C. A. Hill, B.Sc., Managing Director of the British Drug Houses, will preside, and will deliver an address on Progress in Science and Pharmacy, while an interesting list of scientific communications is announced.

Surgeon-Major J. K. Goodwin, A.M.D. (retired), died at his residence, Newton Abbot, Devon, on June 14th, in his 90th year. The deceased officer, who qualified in 1855, served through the China campaign (1860) and the New Zealand campaign (1862). He retired from the Service in 1876.

DONATIONS AND BEQUESTS.—By will the late Sir John Thomas, of Brook House, Wooburn, Bucks, left, among other bequests, £1000 each to the London Temperance Hospital, the High Wycombe and Earl Beaconsfield Memorial Hospital, and the Marlow Cottage Hospital.

Dr. Noel Dean Bardswell has been awarded the Bronze Médaille de la Reconnaissance Française by the French Red Cross for his services in advising the French Government in regard to the treatment of tuberculosis in the French soldier, and more particularly in connexion with the establishment of the Sanatorium Training Colony at Sillery, in the South of Paris.

REGISTRAR OF NURSES.—The Minister of Health has sanctioned the appointment by the General Nursing Council (established under the Nurses Registration Act, 1919, to form and keep a Register of Nurses for the Sick) of Miss Marian Scott Riddell, R.R.C., to be the Registrar of the Council. Miss Riddell, who was trained at St. Bartholomew's Hospital, was before the war matron of the Chelsea Hospital for Women. During the war she served as matron of the 2nd London General Hospital, and subsequently of the 53rd General Hospital in France, until she was appointed principal matron and afterwards Acting Matron-in-Chief of the Territorial Force Nursing Service.

BIRMINGHAM GENERAL HOSPITAL.—The financial position is causing much anxiety. In order to pay off a large overdraft at the bank the board of management, after much consideration, have recommended to the governors that securities be sold to realise a sum of £50,000. In addition they have decided to recommend that a maintenance charge be required from patients after Jan. 1st, 1921. The charge for in-patients over 12 years of age would be one guinea per week, and under 12 half-a-guinea a week. A reduction may be allowed in cases of patients staying for a less period than a week, and part or all of the charge may be remitted in case of necessitous patients.

VENEREAL DISEASES AMONG SEAMEN.—The International Labour Conference at Genoa has given attention to some aspects of the health of seamen, and notably the question of the prevention and treatment of venereal diseases. The delegates (who represent the Governments, shipowners, and seamen of a score of countries) were invited by Mrs. A. C. Gotto and Dr. Otto May, representatives of the National Council for Combating Venereal Disease, to attend a meeting on the question of combating venereal diseases in the Mercantile Marine. At this meeting the hope was expressed that the Conference would not disperse without taking some definite action to help on the work of fighting these diseases, and the following resolution was framed and submitted to the Conference:—

"The International Seamen's Conference, recognising the importance of taking active international measures for the prevention and treatment of venereal diseases in the Mercantile Marine, desires to urge upon the Health Section of the League of Nations the need for immediate attention to this subject. They would recommend for special consideration: (1) The provision of adequate facilities for the prevention and treatment of venereal diseases at all the principal ports; (2) the inclusion of venereal diseases among the conditions for which free drugs and treatment are provided for members of the Mercantile Marine; (3) the dissemination of appropriate information on the subject to seafarers, especially to those at training establishments; and (4) the provision of adequate facilities for recreation at all large ports under the administration of joint organisations representative of owners and seafarers. They desire in addition to call special attention of the international labour organisations to the importance of No. 4 about facilities for recreation."

According to an unofficial report this resolution was adopted by the Conference.

VENEREAL DISEASE IN ABERDEENSHIRE.—At a meeting of the Sanatorium Benefit and Venereal Disease Committee of the Aberdeen County Council held on July 8th the medical officer of health reported that the cases of venereal disease treated had been greatly increasing. The out-patients in the first year of the scheme, 1917–18, for the city and the county, had been 197. The next year the total was 383, and last year 738. The in-patients were the same, the accommodation being in full use. Regarding the suggested provision of out-patient venereal treatment at Peterhead and Fraserburgh the medical practitioners were of opinion that treatment centres there would not be used. The patients would prefer to go to the Aberdeen centre, where they were not known.

AMALGAMATION OF DENTAL SERVICE AT BRIGHTON.—It has been decided that there should be an amalgamation of the Brighton, Hove, and Preston Dental Hospital and the Brighton and District Dental Service; this amalgamation was carried out on July 1st. The Dental Hospital was established in 1886 and the Public Dental Service in 1907. The amalgamation was arranged with the object of extending the privileges on a much larger scale both to the necessitous poor and to those who are able to pay a small fee. A great saving of administrative expenditure as well as of time will, it is claimed, be effected by the amalgamation, and also a great deal of the time of those who give their services gratuitously, and those who carry out the full range of dental surgery at a very small fee. It is interesting to note that X ray photography and the pathological side of dental surgery are to be encouraged. The progress of dental work under this new scheme will be watched with great interest.

POST-GRADUATE WORK IN LONDON.—A considerable amount of post-graduate work has been arranged in London during the summer months, and within the next few weeks additional announcements are likely to come to hand. At the National Hospital for Diseases of the Heart a course covering two weeks will be held from Monday, July 19th, to Saturday, July 31st. Work will commence each morning at 10 o'clock, the first session being devoted to practical instruction in graphic methods (including the polygraph and electrocardiograph); at 11.15 laboratory and clinical demonstrations will be given illustrating the physiology, pathology, and therapeutics of the heart and circulation; clinical work in the wards and out-patient department will occupy the afternoon, and a daily lecture will be delivered at 5 o'clock. The number of entries for this course is limited, and the roll is now almost complete. Immediate application for the remaining tickets should be made to the Secretary of the Fellowship of Medicine, who will give all information as to the fees for the course.

The North-East London Post-Graduate College (Prince of Wales's Hospital, Tottenham) has arranged, in conjunction with the Fellowship of Medicine, an intensive course during the same period, which covers the various departments of medicine and surgery. Demonstrations will be given each day at 10.30 A.M., 11.45 A.M., 2 P.M., and 3 P.M., whilst a lecture will be delivered at 4.30 P.M. Luncheon will be obtainable in the neighbourhood of the hospital, and tea will be provided at 4 P.M. Graduates who desire to attend this course are asked to send in their names without delay to the Secretary of the Fellowship of Medicine, who will forward the necessary information as to the fees for the course, together with a complete syllabus of the demonstrations and lectures. The afternoon lectures are open to all qualified practitioners without fee.

Courses of lectures are now being given at the London Hospital and the Cancer Hospital. In the clinical theatre of the London Hospital Medical College Dr. Theodore Thompson and Dr. George Riddoch are giving a course of Neurology on the Tuesdays and Wednesdays in July and August at 2 P.M., the final lecture being given on August 18th. At the Cancer Hospital a course of clinical lectures on the Diagnosis and Treatment of Cancer is being given on the Tuesdays and Fridays in July and August at 4.30 P.M. In gynæcology Mr. Victor Bonney has resumed his "Talks on Gynæcology" at Middlesex Hospital each Saturday morning at 10.30 during July and August. The Wednesday afternoon lectures at Queen Charlotte's Hospital come to an end on July 28th.

For September a course of Proctology is being arranged at St. Mark's Hospital, City-road, and the postponed course on Spa Treatment will take place at Bath in the third week of September. Early application should be made to the secretary for tickets. The *Bulletin* of the Fellowship of Medicine contains the detailed syllabus of these courses, together with an extensive list of daily hospital appointments open to members of the Fellowship of Medicine. Graduates who intend to devote any portion of their time to study in London are invited to communicate with the Secretary of the Fellowship of Medicine, 1, Wimpole-street, W. 1, stating the class of work in which they are most interested.

PRESENTATIONS TO MEDICAL MEN.—**Dr. H. Pattison** Armstrong, police doctor at Kingston-on-Thames, has been presented with a gold stop-watch by the directors of the Anglo-American Oil Company for an attempt to save the life of Francis Walker, one of their employees. Walker was employed at the Kingston depôt and became overpowered by petrol fumes when working in a large storage tank. The foreman of the works had already made an unsuccessful effort to rescue Walker when Dr. Armstrong entered the tank and succeeded in placing a rope round him. He was hauled to the top alive but died shortly afterwards. —At a public meeting recently held at Frome, Somerset, Dr. J. M. Rattray was presented with a cheque for 100 guineas, raised by public subscription, as a mark of respect, on the occasion of his leaving the town after 38 years' residence.

ROWETT RESEARCH INSTITUTE AT CRAIBSTON.—Mr. John Quiller Rowett, who has given the munificent donation of £10,000 to the Institute for Research on Animal Nutrition at Aberdeen, was entertained at lunch on July 9th by the joint committee representing Aberdeen University and the North of Scotland College of Agriculture, which is in charge of the institute. In the absence of the principal, Sir George Adam Smith, Professor J. A. MacWilliam presided, and, in proposing the health of Mr. Rowett, remarked that they were witnessing the beginning of a scheme of the utmost promise. While the work of the institute related primarily to the nutrition of animals, the whole physical growth and well-being of man was intimately connected with the question of nutrition. It was in experimental work and in throwing light on the intricate problems of the proper feeding of human beings, especially of children, that the institute was destined to play such a great and fruitful part. Mr. Rowett, in reply, congratulated the University on having secured the services of two such brilliant investigators as Dr. J. B. Orr and Dr. Plimmer as director and chief biochemist respectively.

Appointments.

ALDERSON, G. G., F.R.C.S., has been appointed an Honorary Surgeon of the Warneford General Hospital, Leamington, Spa.

BRYAN, C. W. G., *M.C.*, F.R.C.S., Surgeon in charge of out-patients (additional), and in charge of the Orthopædic Department, St. Mary's Hospital,

DAVIDSON, MAURICE, M.D. Oxon., M.R.C.P. Lond., Honorary Physician to the Miller General Hospital for South-East London.

ROTH, P. B., F.R.C.S. Eng., Orthopædic Surgeon, Miller General Hospital, Greenwich.

The Hospital for Sick Children, Great Ormond-street: PATERSON, DONALD H., B.A., M.B., Ch.B., Medical Registrar and Pathologist; BOND, CHARLES E., M.B., M.R.C.S., L.R.C.P., Casualty Medical Officer

Vacancies.

For further information refer to the advertisement columns

Ashton-under-Lyne Union.—Asst. Med. Supt. and Asst. M.O. £300.

Bath, Royal United Hospital. H.P. £150.

Bermondsey Medical Mission, 44, Grange-road, Bermondsey, S.E.—Female Sen. Res. M.O. £200.

Birkenhead Borough Hospital.—Jun. H.S. £200.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150.

Bolton Infirmary and Dispensary.—Female Sen. H.S. £300.

Bradford City.—Female Asst. M.O. £450 plus £67 12s.

Bradford Royal Eye and Ear Hospital.—Aural S.

Bristol General Hospital.—Cas. H.S. £175.

Bristol Royal Infirmary.—Act. Hon. Asst. Obst. P. Also Res. Locum Tenens. 5 gs. a week.

Cardiff City Mental Hospital, Whitchurch, near Cardiff.—Sen. Asst. M.O. £550.

Cardiff, King Edward VII. Hospital.—H.S.'s. £200.

Colonial Service.—M.O.'s for West African Medical Staff, Government Service in Malaya, East African Protectorates, West Indies (including British Guiana), Fiji, and the Western Pacific, &c.

Didcorthy, South Brent, Devon and Cornwall Sanatorium for Consumptives.—Asst. M.O. £250.

Edinburgh, Royal College of Physicians Research Laboratory.—Supt. £1000. Also Asst. to Supt. £500.

Glasgow, Victoria Infirmary.—Med. Tutor and Surg. Tutor. £250. Also two Jun. Asst. P's. and three Jun. Asst. S's. £100.

Gloucester County Asylum.—Jun. A.M.O. £300.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.

Great Northern Central Hospital, Holloway, London, N.—H.P. £150.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—Cas. S.O. £150.

Hereford County and City Mental Hospital.—Jun. Asst. M.O. £350.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S. £50.

Huddersfield County Borough Education Authority.—Dent. S. £450.

Huddersfield Royal Infirmary.—Sen. H.S. £250.

Huddersfield, Storthes Hall Asylum, Kirkburton.—Sen. Asst. M.O. £500.

Hull Royal Infirmary.—Asst. H.S. £150.

Kettering and District General Hospital.—Res. M.O. £300.

Kilmarnock Infirmary.—H.S. £200.

King's Lynn, West Norfolk and King's Lynn Hospital.—Res. M.O. £150.

Leeds, City of.—Asst. M.O. for Maternity and Child Welfare. £500.

Leeds General Infirmary.—Two H.P's.

Leeds Infirmary, Beckett-street, Leeds.—Two Asst. M.O's. £400.

London (Royal Free Hospital) School of Medicine for Women: Anatomical Department.—Sen. Demonstrator. £150. Also full-time Demonstrator. £250. Two part-time Demonstrators.

Maidstone, Kent County Council.—Tuberc. O. £670.

Maidstone, Kent County Mental Hospital.—Jun. Asst. M.O. £300.

Maidstone, West Kent General Hospital.—H.S. £250. Also H.P. £200.

Manchester, Ancoats Hospital.—Res. M.O. £150. Two Jun. H.S.'s. £100. Hon. Dent. S.

Manchester, Baguley Sanatorium for Tuberculosis.—Third Asst. Res. M.O. £300.

Manchester Royal Infirmary, Roby-street, Manchester.—Res. M.O. £200. Also H.P. £50 and £100.

Manchester Royal Infirmary.—Asst. Director, Clin. Lab. £300.

Margaret-street Hospital for Consumption, 26, Margaret-street, W.—Asst. Hon. P.

Miller General Hospital for South-East London, Greenwich, S.E.—Res. Cas. O. £150. Also H.S. £100.

Newcastle-upon-Tyne, Hospital for Sick Children.—Jun. Res. M.O. £200.

Norwich, Administrative County of Norfolk.—Tuberc. O. £600.

Nottingham General Hospital.—Res. Cas. O. £300.

Plymouth Education Authority.—Dep. M.O.H. £600.

Plymouth, South Devon and East Cornwall Hospital.—H.P. £140.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—District Res. M.O. £80.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Anæsth. £95. Also Path. £300.

Roll of Honour Hospital for Children, 688, Harrow-road, W.—Female Hon. Asst. P. and Temp. Asst. P.

Rotherham Hospital.—Jun. H.S. £150.

Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £250.

St. Albans, Herts County Mental Hospital, Hill End.—Locum Tenens M.O. Eight guineas a week.

St. Helens Education Committee.—Dentist. £500.

Sheffield, Children's Hospital, Western Bank.—H.S. £200.

Sheffield Royal Hospital.—Asst. Cas. O. £150.

Sheffield Royal Infirmary.—H.P. £150.

Southampton, Royal Free Hospital.—Locum Tenens.

Stafford, Staffordshire General Infirmary.—H.S. £250.

Staffs Education Committee.—Practitioners under M.O.H. and Sch. M.O. £600.

Sunderland Royal Infirmary.—Jun. H.S. £200.

Swansea General and Eye Hospital.—Jun. H.S. £200.

Taunton and Somerset Hospital.—Sen. and Jun. H. S.'s. £200 and £150 respectively.

Townsville, Queensland, Australia.—Director, Institute of Tropical Medicine. £1200.

Warrington Infirmary and Dispensary.—Jun. H.S. £200.

West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—H.P. £300.

West London Hospital, Hammersmith, W.—H.S. and H.P. £50. Also Asst. S.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Asst. S.

Whipps Cross Hospital, Whipps Cross-road, Leytonstone, E.—Asst. Res. M.O. £350.

Wolverhampton and Staffordshire General Hospital.—H.S. £200.

Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £350.

Worcestershire County Council.—Asst. County M.O.'s and Sch. Oculist. £500 each.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Bishop's Waltham (Hants) and at Bothwell (Lanark).

Births, Marriages, and Deaths.

BIRTHS.

CHANDLER.—On July 12th, the wife of F. G. Chandler, M.A., M.D. Cantab., M.R.C.P., of Harley-street, W., of a daughter.

CLARK-KENNEDY.—On July 5th, the wife of A. E. Clark-Kennedy, M.R.C.S., of Corpus Christi College and Bateman-street, Cambridge, of a daughter.

SCOTT.—On July 11th, at 5, Marion-crescent, Selkirk, the wife of Major T. H. Scott, D.S.O., M.C., R.A.M.C., of a son.

MARRIAGES.

BARLOW—MACDOUGALL.—On July 8th, at St. Mary-in-the-Castle, Hastings, Henry Percy Barlow, M.B., Parkstone, Dorset, to Adelaide Isabella, daughter of the late A. MacDougall, Edinburgh.

HUTCHINSON—KER.—On July 8th, at St. Stephen's, Ealing, Lieut. Charles A. Hutchinson, R.A.M.C., to Elsie Norah, third daughter of Mr. and Mrs. R. L. Ker, Amherst-avenue, Ealing.

LIVINGSTON—LEGASSICKE-CRESPIN.—On July 8th, at St. Mary Abbot's, Kensington, Flight-Lieut. Philip Clermont Livingston, R.A.F., M.S., B.A. Cantab., M.R.C.S., D.P.H., to Lorna Muriel, only daughter of Mr. and Mrs. Legassicke-Crespin, late of West Cromwell-road, Kensington, and Modbury, Devon.

MURPHY FETHERSTONHAUGH-FRAMPTON.—On July 8th, Major Leo Murphy, D.S.O., R.A.M.C., to Millicent, daughter of Mr. and Mrs. Fetherstonhaugh-Frampton, of Moreton, Dorset.

DEATHS.

BERNARD.—On July 10th, at Sydenham-road, Bristol, David Edward Bernard, M.R.C.S., L.R.C.P., aged 78.

DICK.—On July 12th, at Bembridge, Isle of Wight, Inspector-General of Hospitals and Fleets Sir James Nicholas Dick, K.C.B., R.N., Honorary Surgeon to the King, aged 89

REINHARD-RUTLAND.—On July 8th, at Weymouth-street, Charles Emmanuel Reinhard-Rutland, M.D.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE.
MEDICAL UNIT, in the Clinical Theatre of the London Hospital, E.
A Course of Twelve Lectures on Neurology, open to Students and Graduates of the London Hospital and other Schools—
TUESDAY, July 20th.—2 P.M., Lecture III.:—Mr. Riddoch: Disorders of Function from Lesions of the Cerebellum and its Connexions.
WEDNESDAY.—2 P.M., Lecture IV.:—Dr. Thompson: Varieties of Cerebellar Disease.
SURGICAL UNIT, in the Units' Lecture Theatre, London Hospital, E.
Special Course of Lectures open to both Students and Post-Graduates.
Two Lectures on Coli Infection of the Kidney—
WEDNESDAY, July 21st.—4 P.M., Lecture II.:—Mr. F. Kidd.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, July 19th.—2 P.M., Mr. D. Armour: Operations. 2.30 P.M., Dr. A. Saunders: Visit to Medical Wards.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2.30 P.M., Mr. T. Gray: Operations.
WEDNESDAY.—2 P.M., Mr. D. Armour: Visit to Surgical Wards. 2.30 P.M., Mr. Addison: Operations.
THURSDAY.—2 P.M., Mr. D. Armour: Operations. 2.30 P.M., Dr. A. Saunders: Visit to Medical Wards.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2.30 P.M., Mr. T. Gray: Operations.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, July 19th—10.30 A.M., Mr. J. H. Evans: Cystoscopy. 11.45 A.M., Dr. Whiting: Graphic Method of Studying Heart Disease. 2 P.M., Dr. Sundell: Diseases of Ductless Glands. 3 P.M., General Hospital Work. 4.30 P.M., Lecture:—Dr. R. Hutchison: Abdominal Pain and its Diagnostic Significance.
TUESDAY.—10.30 A.M., Mr. Benians: Blood Changes in Disease. 11.45 A.M., Mr. N. Fleming: Injuries of the Eye. 2 P.M., Dr. R. M. Leslie: Cases of Lung Disease. 3 P.M., General Hospital Work. 4.30 P.M., Lecture:—Dr. R. M. Leslie: The Rôle of Endocrinous Glands in Health and Disease.
WEDNESDAY.—10.30 A.M., Dr. Alexander: Investigation of Dyspeptic Conditions. 11.45 A.M., Mr. Carson: After-Treatment of Abdominal Operations (uncomplicated). 2 P.M., Mr. J. H. Evans: Diseases of the Breast. 3 P.M., General Hospital Work. 4.30 P.M., Lecture:—Dr. A. F. Hurst: Nature and Treatment of Hysteria.
THURSDAY.—10.30 A.M., Mr. Hayton: Laryngoscopy and Rhinoscopy. 11.45 A.M., Mr. N. Fleming: Refraction of the Eye. 2 P.M., Dr. Metcalfe: Treatment of Lupus by X Rays. 4.30 P.M., Clinical Consultations (Obscure Medical Cases).
FRIDAY.—10.30 A.M., Mr. Benians: Cellular Exudate in Gonorrhœa. 11.45 A.M., Dr. Whiting: Graphic Method of Studying Heart Disease. 2.30 P.M., Dr. Leslie: Auscultation of the Lungs, Common Fallacies. 3 P.M., General Hospital Work. 4.30 P.M., Lecture:—Mr. H. D. Gillies: Plastic Surgery of the Face and its Application to Civil Conditions.
SATURDAY.—11 A.M., Dr. Macarthur (at the L.C.C. Mental Hospital, New Southgate): Cases of General Paralysis

MALE LOCK HOSPITAL, Dean-street, W.
MONDAY, July 19th, WEDNESDAY, AND FRIDAY.—5 P.M., Dr. C. Russ: Demonstration of the Treatment of Gonorrhœa by Electrolysis.

CANCER HOSPITAL, Fulham-road, S.W.
Clinical Lectures on the Diagnosis and Treatment of Cancer.
TUESDAY, July 20th.—4.30 P.M., Mr. W. E. Miles: Cancer of the Rectum.
FRIDAY.—4.30 P.M., Dr. R. Knox: X Rays in Cancer of the Alimentary Tract.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 24, Acomb-street (behind Whitworth Park).
THURSDAY, July 22nd.—4.30 P.M., Dr. A. C. Magian: Chronic Uterine Complaints.

BOOKS, ETC., RECEIVED.

ALCAN, F., Paris.
Etude critique de l'étiologie des bronchites chroniques avec sclérose pulmonaire. Par le Dr. Jacques Dalsace. Pp. 138. Fr.5.

APPLETON, D., AND CO., London and New York.
Ophthalmology. By L. Webster Fox, M.D., LL.D. 3rd ed. Pp. 831. 35s. net.
A Text Book of Histology. By H. E. Jordan, Ph.D. and J. S. Ferguson, M.Sc., M.D. 2nd ed. Pp. 857. 25s. net.

BAILLIÈRE, TINDALL, AND COX, London.
Practical Chemistry, including Simple Volumetric Analysis and Toxicology. By P. A. E. Richards, F.I.C. 3rd ed. Pp. 149. 5s.
Meat and Food Inspection. By W. Robertson, M.D. 2nd ed. Pp. 292. 18s.
X Ray Atlas of the Systemic Arteries of the Body. By H. C. Orrin, F.R.C.S. Edin. Pp. 92. 12s. 6d.

BLACK, A. AND C., London.
Fundamentals in Sexual Ethics: An Enquiry into Modern Tendencies. By S. Herbert, M.D. Lond. Pp. 350. 12s. 6d. net.

CASSELL AND CO., London.
Assessment of Physical Fitness by Correlation of Vital Capacity and Certain Measurements of the Body, with Tables. By Prof. G. Dreyer and Lieut. G. F. Hanson, American Medical Air Service. Pp. 116. 10s.

CHAPMAN AND HALL, London.
Cocoa and Chocolate. By A. W. Knapp, B.Sc. Pp. 210. 12s. 6d.

FROWDE, H., AND HODDER AND STOUGHTON, London.
Common Infections of the Kidneys with the Colon Bacillus and Allied Bacteria. By F. Kidd, M.B., F.R.C.S. With additional lecture on Bacteriology of the Urine. By Dr. P. Panton. Pp. 332. 18s.

HUMPHREYS, ARTHUR L., London.
A St. Helena Who's Who, or a Directory of the Island during the Captivity of Napoleon. By A. Chaplin, M.D. Pp. 257.

KIMPTON, H., London.
Arteriosclerosis and Hypertension, with Chapters on Blood Pressure. By L. M. Warfield, M.D. 3rd ed. Pp. 266. 24s.
Personal Beauty and Racial Betterment. By Prof. K. Dunlap. Pp. 96. 6s.

LIBRAIRIE LE FRANÇAIS, Paris.
Curiosa de Médecine. By Dr. G. J. Witkowski. Pp. 272. Fr.6.

LIBRAIRE OCTAVE DOIN, Paris.
L'Aerophagie, Syndromes Gastriques, Intestinaux, Circulatoires et Respiratoires. Étude Clinique, Radiologique et Thérapeutique (l'Adulte, l'Enfant, le Nourrisson). Par le Docteur G. Leven. Pp. 228. Fr.6.

LONGMANS, GREEN, AND CO., London and India.
An Indian Pioneer of Science: Life and Work of Sir Jagadis C. Bose, M.A., D.Sc., LL.D., F.R.S., C.I.E., C.S.I., Emeritus Professor, Presidency College, Calcutta, Director of the Bose Research Institute. By Prof. Patrick Geddes. With portraits and illustrations. Pp. 259. 16s.

MACMILLAN AND CO., London and New York.
Applied Eugenics. By Mr. Paul Popenoe and Prof. R. H. Johnson. Pp. 459. 14s.

MARCUS, A., and WEBER, E., Bonn.
Die Therapie an den Bonner Universitätskliniken. By Prof. R. Finkelnburg. Pp. 745. M.36.

MURRAY, JOHN, London.
Nerves and the Man. By W. C. Loosmore, M.A. Pp. 234. 6s.

NISBET AND CO., London.
The Fellowship of the Picture: An Automatic Script taken down by Nancy Dearmer. Pp. 110. 3s. 6d.

UNIVERSITY OF LONDON PRESS, 18, Warwick-square, London, W.C.
Greek Science and Modern Science. By Dr. Charles Singer. Pp. 22. 1s. 6d.

UNIVERSITY PRESS, Cambridge.
Psychoneuroses of War and Peace. By M. Culpin, M.D. Pp. 128. 10s.

URBAN AND SCHWARZENBERG, Berlin and Vienna.
Taschenbuch der Frauenheilkunde. Von Dr. Koblauck. Pp. 282. M.54.
Taschenbuch der Augenheilkunde. Von Prof. C. Adam. Pp. 400. M.66.
Handbuch der klinischen Hydro-, Balneo-, und Klimatherapie. Von Prof. A. Strasser, Dr. F. Kisch, und Prof. E. Sommer. Pp. 911. M.210.

VOGEL, F. C. W., Leipzig.
Pathologische Physiologie des Chirurgen (Experimentelle Chirurgie). By Prof. F. Rost. Pp. 614. M.38.

Communications, Letters, &c., to the Editor have been received from—

B.—Dr. W. H. Baines, Buffalo; Dr. R. D. Batten, Lond.; Mr. A. W. Bourne, Lond.; Dr. L. S. Burrell, Lond.; Bristol University, Registrar of; Dr. N. D. Bardswell, Lond.; Dr. H. O. Butler, Lond.; Bird Sanctuary Committee, Hon. Sec. of; Dr. A. Blackhall-Morison, Lond.
C.—Dr. S. D. Clippingdale, Lond.; Chadwick Trust, Sec. of; Mr. W. M. Coleman, Cambridge; Dr. E. N. Cook, Lond.; Dr. P. J. Cammidge, Lond.; Dr. J. B. Christopherson, Lond.
D.—Dr. H. Drinkwater, Wrexham; Department of Agriculture, Ottawa; Dr. P. J. Delaney, Claremorris.
E.—Edinburgh Faculty of Medicine, Dean of; Dr. A. M. Elliot, Lond.; Dr. H. A. Ellis, Lond.
F.—Fellowship of Medicine, Sec. of; Mr. W. R. Fairbrother, Lond.; Food Education Society, Sec. of.
G.—Capt. R. L. Gamlen, I.M.S.
H.—Maj.-Gen. P. Hehir, I.M.S.; Dr. F. Heatherley, Manchester; Sir Thomas Horder, Lond.; Dr. C. Hirsch, Lond.
I.—Dr. E. G. B. Ibotson, Corris; International Labour Office, Lond.
J.—Dr. J. H. Jones, Standford Dingley.
K.—Mrs. A. E. Kamp.
L.—London Hospital, Director of Medical Unit; Liverpool University, Registrar of; Liverpool School of Tropical Medicine, Acting Sec. of; Dr. Lediard, Carlisle; *London University Gazette*; Dr. W. A. Loxton, Birmingham.
M.—Ministry of Health, Sec. of; Metropolitan Hospital Sunday Fund, Sec. of; Mental Hospitals Association, Sec. of; Dr. L. McGavin, Lond.; Ministry of Health, Public Information Branch; Dr. A. G. Middleton, Brooklands; Ministry of Pensions, Special Grants Committee; Dr. J. C. McWalter, Dublin.
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R.—Dr. G. Riddoch, Lond.; Royal Statistical Society, Chief Clerk of; Mr. A. R. Reade, Lond., Dr. W. T. Ritchie, Edinburgh; Dr. A. H. Roffo, Lond.
S.—School of Physic in Ireland, Registrar of; Capt. C. T. Strange, R.A.M.C.; Save the Children Fund; Dr. S. Samuel, Leeds; Société des Sciences de Montpellier; Sheffield University, Registrar of; Dr. G. A. Stephens, Swansea; Mr. W. M. Scott, Bridgwater.
T.—Dr. D. Thomson, Lond.; Dr. S. R. Tattersall, Lytham; Tan-Sad Works; Dr. F. H. Teale, Lond.
U.—Mr. S. Unwin, Lond.; U.S. Public Health Service.
W.—Dr. W. H. Wynn, Birmingham; Mr. W. Webster, Newcastle, Staffs; Mrs. M. Whitehead, Lymington.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

A SURGEON AND AN EX-EMPEROR.

THE letters of William Warden, surgeon on Board H.M.S. *Northumberland*, the ship which conveyed Napoleon to St. Helena, were published in 1816 and went through more than one edition. Many medical men may be familiar with them, but they are generally cited as a contemporary record of certain phases in the earlier period of Napoleon's captivity, rather than for the glimpses which they give of British medical practice 100 years ago, as seen by a surgeon in the Royal Navy, and an "intelligent foreigner." The questions which Napoleon, as a strategist, a military organiser, and a politician, showered upon those officers with whom he was brought in contact during the *Northumberland's* voyage, were no doubt, as Mr. Warden affirms, directed to those who could best give the information asked for, and in the best manner for extracting it. Those which he asked of a medical man to whom he evidently had taken a fancy show him as rising indeed above the level of a Count Smorltork, but hardly as a man of acute intelligence mastering rapidly the essentials of the subject of his inquiry. In fact, he laid down the law and cross-questioned Warden about as comprehensively and with no greater acumen than the average exalted personage or layman successful in his own walk of life, whom chance brings into contact with a medical man unable to escape from him. "In the course of your practice and on your conscience, how many patients have you killed?" and, in discussing the merits of a drug which he had denounced as a "bad medicine," "Did Hippocrates use it?" are hardly the questions of a master mind, although the first was put "with a half-comic, half-serious countenance," and the latter was not difficult to answer. In reply, Mr. Warden was able to say politely, if platitudinously, that his conscience did not accuse him of having caused the death of anyone, and with regard to Hippocrates, that although he was, as Napoleon put it, among the first physicians, he "might have derived great advantages from modern discoveries"—courteous replies to an exalted personage. Napoleon, however, did not always ask absurd questions, and as he no doubt had often tried to pick the brains of eminent French doctors as pertinaciously as he did in the case of the ordinary Englishman with whom fate had brought him into contact, he presumably had learnt to voice their opinions. In the conversation into which he introduced Hippocrates he was questioning Warden's desire to treat General Gourgond's dysentery with mercury, and he put the case for non-intervention not unreasonably. "Does not nature endeavour to expel morbific matter, and may not the present painful struggle be an effort of nature to rid herself of what is obnoxious"? Warden was also not unreasonable in his reply: "I have been taught to assist nature."

Blood-letting: A British Panacea.

The ex-Emperor was constantly twitting Warden on the subject of the British fondness for blood-letting, although he stated on one occasion that when his Empress was confined he had himself suggested bleeding her, as "she was in a very full habit." Dr. Corvesart, who was attending her, and in whom he had evidently great confidence, had refused, and no doubt expressed views held by other Frenchmen as to the British panacea. Warden staunchly, and perhaps patriotically, upheld the efficacy of bleeding, citing as conclusive a case from his own experience, which might almost be described as awe-inspiring. At any rate, he does not record any retort from his hearer, and concludes by saying that it was "enough to make anyone a convert to the lancet." He had, he said, on one occasion in three days reduced the pulse of a seaman sick with "an inflammation of the stomach" from 150 beats in the minute to 87, taking from him in the time mentioned 15 lb. of blood. The story, at any rate, must have impressed on his hearers the stalwart physique of the victors of the Nile and Trafalgar.

Comparisons between French and English Surgeons.

If Warden's replies when dealing with the causes and treatment of disease serve to illustrate the progress of a century in science, some of those upon more general topics connected with medicine might have been given *mutatis mutandis* to-day to any "intelligent foreigner." By this it is not intended to suggest that the distinctions drawn by Warden between British and French surgery would be couched in the same terms as in 1816, but merely that the principles of comparison would be the same. At any rate, the honourable aims and standards of British medicine have remained the same for 100 years, and Warden showed himself a sensible, level-headed man, properly jealous of the honour of his profession.

"Which do you think are the best surgeons, the French or the English?" Napoleon inquired. "The English, undoubtedly."

"But wherefore?"—"Because our schools are better. There is more system in our education, and the examination is such as to establish the fitness of any candidate for the profession before he is regularly admitted into it."

"But in point of practice will you not allow that the French surgeons have the advantage of you?"—"In practice, General, the French are empirics. Though they do not vend nostrums like our quacks in England. They are, in fact, more guided by experience than theory. But you, Sir, have enabled my brethren in the English army to be tolerable proficients in field practice."

Napoleon smiled, and changed the subject, still intent upon comparisons.

"Who is your first physician in London?"—"That is an inquiry which I did not expect and cannot take upon myself to answer; there are so many physicians of eminence there that it would be hazardous to mention a favourite name."

"But have you no particular person in the profession who takes the lead?"—"No, indeed; there are, it is true, fashionable physicians who have their run for a season or two, or even three, but I could not give the preference to one without doing injustice to fifty. I could, I think, more particularly distinguish eminent surgeons."

"What is the general fee?"—"That frequently depends upon the rank and fortune of the patient."

"What is the highest you have ever known?"

Warden was cautious in his answers as to medical fees and medical fortunes, and the ex-Emperor seems to have asked the question in order to introduce the statement that Corvesart had received 3000 napoleons for attending the Empress Maria Louisa in her confinement.

Warden's Remuneration.

The subject then was changed abruptly to Warden's own practice and position. Was he employed on shore, as well as at sea? And did he receive good fees when he visited the patient of a friend? As to this last he answered, "I have never yet accepted of a fee. While I serve I am satisfied with my pay." He was a worthy man indeed, with a contented soul, for his pay at that time, as he told his questioner, was but £220 per annum after 20 years' service in the navy. Moreover, at St. Helena living was not cheap. "A stranger cannot board under 30*s.* a day." So he made both ends meet by accepting the hospitality of his friends and having some of his meals on board the *Northumberland*. He admitted that his navy pay was small, but declared that he had no right to complain, as he knew the conditions of service before he engaged, and in England there was no compulsion to serve. So he went on placidly to explain where he was educated, citing to Napoleon the names of Black, Munro, and Gregory as eminent names in medical education at Edinburgh, with the reservation that he could name equally eminent teachers in England. Napoleon had strong views of his own, needless to say, on the comparative merit of his own medical advisers. "I never knew," he said, "but one physician who was infallible in his diagnostics. He was certain in his discovery of the nature and seat of a disease; his name was Dubos; but strange to say, he could not prescribe; and consequently would never undertake the treatment or cure of a complaint whose character his acumen could so accurately penetrate." It was soon after this interview that Warden left St. Helena, with a prospect of some day retiring on a pension of 6*s.* a day, to be increased only if he should then have served for 30 years.

SPECIAL PENSIONS GRANTS.

THE regulations of the Special Grants Committee of the Ministry of Pensions have been extended and revised, and the Committee is now in a position to consider applications from—

1. Officers disabled in the war (*a*) in respect of their wives, up to a maximum of £50 a year; (*b*) in respect of their children up to a maximum of £36 per annum for each child.
2. The widows and dependents of deceased officers.
3. Nurses belonging to the Imperial Military or other nursing services, who served in the war.

These regulations will shortly be on sale at H.M. Stationery Office, price 1*d.* Claims should be addressed to the Secretary, Special Grants Committee (Officers Section), Millbank House, London, S.W.1.

ROYAL UNITED HOSPITAL, BATH.

A REPRESENTATIVE meeting was recently convened by the Mayor of Bath to consider the serious financial position of the Royal United Hospital. After some discussion it was eventually decided to build an institution at Combe Park, on the site of the present Pensions Hospital. It is proposed first to establish wards for persons of limited means, who will pay moderate fees, and ultimately it is hoped to remove the whole hospital from its present position in the centre of the city to Combe Park. The entire scheme will involve an expenditure of about £148,000. Mr. F. Mallett has promised to purchase the site, which will cost £5000. Promises of amounts totalling £20,000 have already been received towards the scheme.

SANITARY ADMINISTRATION IN THE PUNJAB, 1918.

THE population of the Punjab at the 1911 census was 19,337,146, and for the year 1918 was estimated at 20,205,141. Calculated on this total, the birth-rate was 37·9, and the death-rate 77·5 per 1000; if estimated on the census figures these ratios would be 39·6 and 81 per 1000 respectively. The birth-rate (39·6) was considerably below that for the preceding quinquennium (45·2), but higher than that in the neighbouring North-West Frontier Province (30·58), and in Madras (28·89), as well as in many other provinces, during 1918. There was very great variation in the ratios for different districts. Thus in Karnal there were 51·3, and in Rohtak 49·2 births per 1000, while in Simla the ratio was only 21·2, and in Dera Ghazi Khan 19·3. The death-rate was for the whole province 81 per 1000, the total number of deaths being 1,565,560. This mortality ratio is the highest recorded in the Punjab since 1867, the excess being due entirely to influenza, recorded under the head of fevers. Lieutenant-Colonel W. H. C. Forster, I.M.S., Sanitary Commissioner for the province, who presents this report, gives a detailed and graphic account of the visitation, which, he states, was the worst epidemic that the Punjab has ever experienced, and—

"one which, with almost diabolical malignancy, selected young adults for its victims. A peculiarly fatal type of pneumonia appeared as a concomitant of the disease, and from Oct. 15th to Nov. 8th the state of the province was such as to render adequate description impossible. The hospitals were choked so that it was impossible to remove the dead quickly enough to make room for the dying; the streets and lanes of the cities were littered with dead and dying people; the postal and telegraph services were completely disorganised; the train service continued, but at all the principal stations dead and dying people were being removed from the trains; the burning ghâts and burial grounds were literally swamped with corpses, while an even greater number awaited removal; the depleted medical service, itself sorely stricken by the epidemic, was incapable of dealing with more than a minute fraction of the sickness requiring attention; nearly every household was lamenting a death, and terror and confusion reigned everywhere. ..... The great malaria epidemic of 1908 and the worst years of plague fade into insignificance beside this epidemic, which in three months, October–December, killed 962,937 people."

This mortality is equivalent to 49·8 per 1000 of the population according to the 1911 Census, or 45·8 per 1000 on the population as estimated for the year 1918. The European population escaped lightly. Among commissioned officers and their families, and for Europeans generally, the mortality was trifling, well under 5 per cent. of the cases; at the military asylums of Sanawar and Ghora Galli there were 398 cases and no deaths. For the Indian population of the better class, and among those provided with medical aid, it is estimated at about 6 per cent.; among the poorer classes "anything from 50 per cent. upwards." Among the jail population in the province there were 4475 cases and 520 deaths from influenza, giving a case-mortality of 11·6 per cent. Rural areas suffered more than the towns, this being due, in Colonel Forster's opinion, to the two circumstances that "for practical purposes the rural areas, even in normal times, are without qualified medical aid," and "the rural population is unable to benefit from communal effort—itself energised by competent directing authority—to anything like the same extent as the urban population." The preventive measures considered to be most important are: improvement of housing conditions, as soon as this becomes practicable; the provision of medical aid, at the rate of one qualified practitioner per 100 square miles on an average; antiseptic treatment of the naso-pharynx; attention to personal hygiene; and avoidance of all crowded places. Preventive inoculation is not recommended.

Cholera caused 257 deaths, only 0·01 per 1000 of the population, less than in any year since 1902. Under "fevers," from which 1,287,027 deaths were registered, giving a death-rate of 66·56 per 1000 (as compared with the quinquennial mean of 19·12), the large increase was due to influenza. At Simla there were 22 cases of enteric fever, 15 being among Europeans in various parts of the station, and apparently unconnected with each other. There were 3032 deaths from small-pox, compared with 1417 in the previous year (0·16 and 0·07 per 1000 respectively). Vaccination was interfered with by the influenza epidemic. Colonel Forster has made a good start in the education of the general public in matters of elementary hygiene. He has had diagrams and lantern slides prepared from photographs taken by himself, and intends developing this work, which is likely to have excellent results.

REFRACTOMETERS.

APPLICATIONS of the refractometer to physiological and clinical analysis have received of late years a great deal of attention in Germany and America. Since refractometers are now among the none too numerous scientific instruments which in this country are made better than in any other it is to be hoped that their applications to such problems will be encouraged. The Abbe and Dipping refractometers are well known to organic chemists, and are generally regarded as indispensable instruments in chemical research or control laboratories. Numerous papers have been written on the refractometer in physiological and clinical analyses. Robertson's method of estimating the proteins in 0·5 c.cm. of blood serum may be specially mentioned. Abderhalden gives a bibliography of the use of this instrument in the examination of blood, urine, cerebro-spinal fluid, &c., and for the control of the action of ferments and bacteria. Full particulars and reference to many such applications can be obtained from Messrs. Adam Hilger, Ltd., of 75A, Camden-road, London, N.W.1, who are makers of these instruments.

THE SPELMAN APPEAL.

IN our issue of May 15th last we published a moving appeal by Dr. P. J. Delaney in behalf of the widow and children of the late Dr. A. P. Spelman, of Dunmore, co. Galway, who was killed in a motor-car accident at the age of 26, leaving his family unprovided for. The list of subscribers to the Fund up to date is as follows:—

£10 10s.—Dr. McArdle, Merrion-square, Dublin; Dr. Burgess, Victoria Park, Manchester; Dr. Meade, Fitzwilliam-place, Dublin.

£5 5s.—Dr. Meenan, Stephen's Green, Dublin; Sir Wm. de Courcy Wheeler, Fitzwilliam-square, Dublin; Dr. Vincent Tighe, Upper Leeson-street, Dublin; Dr. E. B. Kinsey, Trinity Terrace, Derby; Dr. McLaverty, Merrion-square, Dublin; Dr. Mooney, Fitzwilliam-place, Dublin; Dr. P. J. Delaney, Claremorris, co. Mayo; Dr. T. A. Heneghan, Ballindine, co. Mayo.

£5.—Dr. McMichael, Tullamore, King's County; Dr. Kane, Rossington Lower, Doncaster; Dr. Melville, Church-square, Basingstoke; Dr. Phelan, Callan, co. Kilkenny; Capt. Richardson, R.A.M.C., 29th King's Liverpool Regiment, Calais; Dr. Cassiday, Lisnaskea, co. Fermanagh; Dr. Law, Coleraine, Derry.

£3 3s.—Dr. Mahon, Nile Lodge, Galway; Dr. McGuinness, Harcourt-street, Dublin; Dr. Morris, Devon-place, Galway; Dr. Flannery, Hollymount, co. Mayo; Dr. Rendall, Forest-grove, Nottingham; Dr. P. J. Kenelly, Tralee.

£3.—Dr. T. MacDonagh, Galway; Dr. Kennedy, Merrion-square, Dublin.

£2 10s.—Dr. McKinney, Lower Fitzwilliam-street, Dublin.

£2 2s.—Dr. O'Hea, Leeson-street, Dublin; Dr. Walsh, Westport, co. Mayo; Dr. O'Carroll, Merrion-square, Dublin; Dr. Gray, Kiltormer, Ballinasloe; Dr. Ronayne, Trafford Park, Manchester; Dr. Mangan, Carna, co. Galway; Dr. Dargin, Stephen's Green, Dublin; Dr. McNulty, Killala, co. Mayo; Dr. Martin, Clifton Vale, Clifton, Bristol; Dr. Elliott, Hookstown, co. Tyrone; Dr. Peck, Laton-road, Hastings; Dr. Solomons, Fitzwilliam-square, Dublin; Dr. MacLeod, Port-street, Evesham; Dr. Purcell, Blessington, Dublin; Dr. Brennan, Idione Terrace, Blackrock, Dublin; Dr. Lagan, Omagh, co. Tyrone; Dr. Redmond Keating, Tralee, co. Kerry; Dr. Keogh, Lower Fitzwilliam-street, Dublin; Dr. Kelly, Roscommon; Dr. Gilmour, Stephen's Green, Dublin; Dr. Ryan, M.P., Wexford; Right Hon. M. F. Cox, Merrion-square, Dublin; Dr. Doolin, Fitzwilliam-square, Dublin; Dr. Lockhart Stephens, Emsworth, Hants; Dr. Fitzgerald, Hollymount, co. Mayo; Dr. McDonnell, Vicker's Croft, Galway; Dr. Flannery, Tubbercurry, co. Sligo; Dr. Doyle, Gurteen, Sligo; Dr. Ryan, Clondalkin, Dublin; Dr. Florence Stoney, Poole-road, Bournemouth.

£2.—Dr. Clarke, Loughlin, co. Roscommon; Dr. McInery, Ballymacarbury, Waterford; Dr. G. McGuire, Claremorris, co. Mayo; Dr. Pollard, Cumberland-road, Bristol; Captain C. S. Hamilton, R.A.M.C., Exeter; Dr. Forde, Castlerea, co. Roscommon; Dr. Wilson, Ashton Lodge, Tunbridge Wells; Dr. Bride Martyn, Holgate Hosp., Lintorp, Middlesbrough; Dr. Cooney, Lusk, co. Dublin; Dr. Macnamara, Corofin, co. Clare; Colonel Macnamara, Corofin, co. Clare.

£1 1s.—Dr. Knott, Castlebar, co. Mayo; Dr. Stokes, Fethard, co. Tipperary; Dr. Wilson, Mercer's Hosp., Dublin; Dr. M. Ryan, Drury-lane, London; Dr. Barnaville, Lower Fitzwilliam-street, Dublin; Dr. Keane, Ennistymon, co. Clare; Dr. Broderick, Cabinteely, Dublin; Dr. Hawkshaw, Ballinrobe, co. Mayo; Dr. Cox, Med. Sec., B.M.A., Strand, London; Dr. Pope, The Garth, Hereford; Dr. E. Minceliens, Brook Hosp., Shooter's Hill, London; Dr. Burke, Princes-square, London; Dr. Hawkins, Constantine House, Avonmouth; Dr. Whiteside, Fazeley, Tamworth; Dr. McNeill, Pitlochry, England; Dr. Beirne, Charlestown, co. Mayo; Dr. Corboy, Fort Prospect, Limerick; Dr. Thompson, Tuam, co. Galway; Dr. Barry, Philipstown, King's County; Dr. Staunton, Swinford, co. Mayo; Dr. Mills, Ballinasloe, co. Galway Dr. Casey, Clifden, co. Galway; Dr. Sandays, Gort, co. Galway; Dr. Brown, St. Catherine's-place, Edinburgh; Dr. Ffennell, Southbourne, Bournemouth; Dr. Ryan, Glenlara, co. Tipperary; Dr. Campbell, County Hosp., Galway; Dr. Murphy, St. Patrick's Hill, Cork; Dr. Ryan, Pembridge Villas, London; Dr. Shepherd, Tulse Hill, London; Dr. O'Gorman, Gowran, co. Kilkenny; Dr. Duncan Scott, Simington, Cambridge; Dr. Dudley, High-street, Stourbridge, Worcester; Dr. Johnstone, Royal Asylum, Morningside, Edinburgh; Dr. Berry, Burnham, Somerset; Dr. Blight, Newport-road, Cardiff; Dr. McMillan, Roseberry-terrace, Glasgow; Dr. King, Dalkey, co. Dublin; Mr. Frank Healy, National Bank, Claremorris; Mr. Edward Fitzgerald, Ballinrobe; Dr. Charlotte Warner, Newcastle, co. Down; Dr. Branford Morgan, Tombland, Norwich; Dr. Rossiter, Ballinasloe, co. Galway; Dr. Waters, Carbury, co. Kildare; Dr. O'Brien, Merrion-square, Dublin.

£1.—Dr. Evelyn Fisher, Glyncorrwg, Port Talbot; Dr. M. McDonagh, Galway; Dr. Orton, Coventry, England; Dr. MacHenry, The Crescent, Galway; Anon.; Dr. Crean, Ballyhaunis, co. Mayo; Dr. McBride, Castlebar, co. Mayo; Dr. Madden, Kiltimagh, co. Mayo; Dr. Scanlon, Chelsea, London; Dr. Dickson, Lochgelly, Fife; Dr. M. Lee, Newport, co. Mayo; Dr. Crowley, Loughrea, co. Galway; A Friend (per P. J. Kenealy, Tralee); Dr. O. Sullivan, Crookstown, co. Cork; Dr. Mark Love, Lansdown, Stroud, England.

10s.—Dr. Hollis, Hove, Brighton; Dr. O'Malley, Gort, co. Galway; Sir James Verrall, Entry Hill, Bath.

7s. 6d.—Anon.

The list is signed by Dr. P. J. Delaney, Claremorris, and Dr. T. A. Henegan, Ballandine, both in co. Mayo, to whom further subscriptions may be sent.